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A GENERAL RÈSUMÈ OF CHIEF EXAMINERS' REPORTS ON THE MAY/JUNE 2019 WEST AFRICAN SCHOOL CERTIFICATE EXAMINATION (WASSCE) FOR SCHOOL CANDIDATES IN SIERRA LEONE

1. STANDARD OF THE PAPER

Almost all the Chief Examiners in their reports mentioned that the papers were of the required standard when compared to those of previous years. The questions drawn were within the scope of the syllabus and were free of ambiguities, the rubrics were clear and the marking schemes flexible to accommodate various responses with marks evenly distributed.

However the Chief Examiner for Physics 2(pg.167) differed a bit he stated that it was difficult to agree that the questions were of the same standard and weight

2. CANDIDATES' PERFORMANCE

There were variations in the performance of candidates as highlighted in the various reports.

An improved performance was noted in the following subjects - History 2(pg.64), Clerical Office Duties 2(pg.06), Financial Accounting 2(pg.10), Visual Art 2(Pg.221), Management-in-Living 3(pg.214), Management-in-Living 2(pg.206), Economics 2(pg.37), Physics 3(pg.167), Physical Education 2 & 3(pgs.147 & 153) and Health Science 3(pg.141).

An unsatisfactory performance - Science Core 2(pg.177), Chemistry 3(pg.134), Christian Religious Studies 2(pg.34), History 2(pg.64), Engineering Science 2(Pg.192), Woodwork 3(pg.229), Principles of Cost Accounting 2(pg.23) and Further Mathematics 2(pg.86).

An average performance in Financial Accounting 2(pg.10) and Chemistry 2(pg.120).

An impressive performance from Private School candidates – French 2(pg.82).

An exceptional performance for some French 3(pg.84) candidates.

Business Management 2(pg.01).recorded a slight variation in the performance of candidates.

An abysmal performance in map reading – Geography 3(pg.49).

A similarity in performance as compared to previous years for Mathematics Core 2(pg.92).

Decline in candidates performance in Home Management 2(pg.200).

3. CANDIDATES' STRENGTHS

The following were noted by the various Chief Examiners as strengths of the candidates.

- An improvement in defining basic terms in Science Core 2(pg.177), Biology 2(pg.113), Engineering Science (pg.192), Business Management 2(pg.01) and Clerical Office Duties 2(pg.06).
- Adherence to rubrics Biology 2(pg.113), History 2(pg.64), Geography 2(pg.44)and French 2(pg.82) the informal letter and Economics 2(Pg.37).
- An improved performance in certain aspects organic Chemistry 2(pg.120), Science Core 2(Pg.177), Biology 3(pg.116) Alovera and orange plant leaf and Termite.
- Candidates from school in the regions performed better than those in the city Agricultural Science 2(pg.110).
- Drawing suitable diagrams Further Mathematics 2(pg.86) and Mathematics Core 2pg.92).
- Some candidates demonstrated knowledge and preparedness for the examination Government 2(pg.), Literature-in-English 2(pg.69), History 2(pg.64) and Management-in-Living 3(pg.214).
- Improved Mathematical ability and good performance in Some questions Principles of Cost Accounting 2(pg.23), Financial Accounting 2(pg.10), Visual Arts 3^B(pg.227), Technical Drawing 2 & 3 (Pgs.219), Physical Education 2(pg.147), Chemistry 3(pg.134) and Mathematics Core 2(pg.92).

4. CANDIDATES' WEAKNESSES

The Chief Examiners identified the following as weaknesses in the candidates:-

 Non adherence to the rubrics – Physics 2(pg.156), Chemistry 3(pg.134), Christian Religious Studies 2 (pg.34), Government 2(pg.58), History 2(pg.64), Literature-in-English 2(pg.69), English Language2(pg.75), Business Management 2(pg.01).

- Inadequate knowledge of basic terms required in the subject Home Management 2(pg.200), Visual Art 2(pg.221), English Language 2(pg.75), French 3(pg.84), Health Science 3(pg.141).
- Illegible handwriting and disorganized work Economics 2(pg.37) and English Language 2(pg.75).
- Inadequate coverage of the syllabus Principles of Cost Accounting 2(pg.23), Science Core 2(pg.177), Agricultural Science 3(pg.110), Physics 2(pg.156).
- Inability to properly understand and interprete the questions correctly Chemistry 2(pg.120), Science Core 2(pg.177), Chemistry 3(pg.134), Geography 3(pg.49), Further Mathematics 2(pg.86), Mathematics Core 2(pg.92), History 2(pg.64).
- Poor communication skills Agricultural Science 3(pg.110), Science Core 2(pg.177), Physical Education 2(pg.147), Physics 2(pg.156), Chemistry 3(pg.134), Economics 2(pg.37), English Language 2(pg.75), French 2(pg.82), Clerical Office Duties 2(pg.06), Business Management 2(pg.01) and Economics 2(pg.37).
- Lacked basic calculation skills Financial Accounting 2(pg.10), Mathematics Core 2(pg.92), Further Mathematics 2(pg.86), Physics 2(pg.156), Chemistry 3(pg.134).
- Inadequate preparation for the examination Chemistry 2(pg.120), Science Core 2(pg.177), Geography 3(pg.49), Woodwork 3(pg.229).
- Lacked indepth knowledge on the subject matter Financial Accounting 2(pg.10), Clerical Office Duties 2(pg.06), Principles of Cost Accounting 2(pg.23), Home Management 2(pg.200), Engineering Science 2(pg.192), English Language 2(pg.75), French 2(pg.82), French 3(pg.84), Geography 3 Map reading (pg.49) and Chemistry 3(pg.134).
- Poor drawing skills Biology 2(pg.113), Geography 3 Map reading (pg.49), Further Mathematics 2(pg.86), Mathematics Core 2(pg.92), Building Construction 2(pg.190), Visual Art 3^A and 3^B (Pgs.225 & 227).
- Poor supervision of examination at certain examination centres Principles of Cost Accounting 2(pg.23).
- Inadequate preparation for practical subjects Home Management 3(pg.204), Woodwork 3(pg.229), Chemistry 3(pg.134).
- Non availability of text books Literature-in-English 3(pg.73), Foods and Nutrition 2(pg.197).
- Lack of trained and qualified teachers especially in Science Core 2(pg.177) and practical subject Woodwork 3(pg.229).

- Inadequate or lack of appropriate tools for practical exams – Metal Work 2(pg.217), Woodwork 3(pg.229), Home Management 3(pg.204).

5. SUGGESTED REMEDIES

- Teachers and candidates should be conversant with and exhaust all the topics in the syllabus.
- Supervisors should ensure proper conduct and supervision of the examination.
- Candidates should engage in continuous exercises assignments and extra classes to adequately prepare for examination.
- Required tools/equipment should be provided for technical, vocational and science subjects and both teachers and candidates should be taught how to handle them correctly.
- Candidates should be made to work on their drawing and practical skills.
- Complete and comprehensive coverage of the syllabus should be ensured by both teachers and candidates especially Literature texts.
- Survey should be done to ensure that prescribed texts are readily available before they are recommended.
- Ensure trained and qualified teachers are assigned to examination classes especially in remote areas.
- Schools should encourage team teaching in certain subjects and make room for additional teaching time.
- Candidates should read and understand the questions well before attempting them, and they should give detailed answers instead of merely stating or listing of points.
- Candidates should inculcate good reading habits to improve on their spelling and writing skills.
- Teachers should make use of Chief Examiners report this will help them to know the demands of the questions and to overcome mistakes that keeps repeating.
- Geography teachers should impress the importance of Map reading and drawing skills especially the maps.
- Emphasis should be laid on reference materials to broaden the horizon of candidates.
- Candidates should have indepth knowledge of the subject and be fully prepared before attempting the examination.

- Candidates should be exposed to practical aspects well before exams for all subjects with practical components.
- Candidates should improve on their writing skills they should familiarize themselves with technical terms and concepts of the subjects.
- Ministry of Basic Education should impress it on schools presenting candidates for science subjects to have equipped laboratories.
- Schools should employ trained and qualified teachers.
- Qualified science teachers should be motivated especially in remote areas this will also help to attract other teachers to such areas.
- Candidates offering science subjects should be motivated to enhance better performance in these subjects.
- Candidates should learn to plot graphs and label diagrams correctly.
- Candidates should learn to derive Mathematical formulas and interprete keywords.
- Candidates should refrain from including irrelevant and extraneous materials in the answers inorder to avoid too many mistakes.

BUSINESS SUBJECTS

a(i) <u>RÈSUMÈ OF THE BUSINESS SUBJECTS</u>

1. STANDARD OF THE PAPER

Almost all the Chief Examiners reported that the papers were of the required standard and compared favourably with those of previous years. They also maintained that the questions were within the scope of the WASSCE syllabus.

2. CANDIDATES' PERFORMANCE

There were variations in the performance of candidates Business Management 2(pg.01) recorded a slight variation in the performance of candidates, for Clerical Office Duties 2(pg.06) candidates performed better when compared to previous years. Financial Accounting 2(pg.10) stated an average performance at par with previous years. For Principles of Cost Accounting 2(pg.23) candidates performance was worse than previous years although a few performed way above average.

3. CANDIDATES' STRENGTHS

The following were identified as candidates strengths:

- Sufficient knowledge on basic concepts Business Management 2(pg.01), Clerical Office Duties 2(pg.).
- Improved mathematical ability and good performance in some questions Principles of Cost Accounting 2(pg.23) and Financial Accounting 2(pg.10)

4. CANDIDATES' WEAKNESSES

The following weaknesses were identified by the Chief Examiners.

- some candidates lacked basic calculation skills Financial Accounting 2(pg.10) and Mathematics 2(pg.92).

- lacked indepth knowledge in the subject matter Financial Accounting 2 (pg.10), Clerical Office Duties 2(pg.06) and Principles of Cost Accounting 2(pg.23).
- candidates inability to adequately express themselves Clerical Office Duties 2(pg.06), Business Management 2(pg.01).
- Inability to adhere to rubrics Business Management 2(pg.01)

a(ii)

- Poor supervision at examination centres Principles of Cost Accounting 2(pg.23)
- Failure to complete the syllabus Principles of Cost Accounting 2(pg.23)

5. SUGGESTED REMEDIES

- Teachers and candidates should be conversant with all the topics in the syllabus.
- Supervisors at the examination should ensure that candidates are properly supervised during the conduct of the examination.
- Candidates should engage in continuous exercise and extra classes to adequately prepare for the examination.

BUSINESS MANAGEMENT 2

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

SECTION A

As usual, major topics in the prescribed syllabus were covered and the questions were straightforward.

The standard of the paper in compared with those of previous years, remain the same, but there was a slight variation in the performance of the candidates. This was largely due to the inability of many candidates to correctly express themselves in written English. Spelling mistakes were common occurrences the sum total of which accounted for their poor performances.

Some of the candidates were unable to answer the required number of questions.

2. <u>CANDIDATES' STRENGTHS</u>

Most of the candidates demonstrated sufficient, knowledge on basic concepts in business management, notwithstanding their challenges.

3. <u>CANDIDATES'WEAKNESSES</u>

- Repeated spelling mistakes and poor expressions in written English continue to be part of the candidates' weaknesses.
- Failure of candidates to answer the required number of questions account for their overall poor performances.
- The above weaknesses can be inproved through continuous exercises and extra classes.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

Tight Fit Design was established ten years ago to produce garments. Its Managing Director, Julian Spain, set up structures that helped in co-ordinating the activities of the various branches towards the achievement of the goals of the company.

The company has been a leader in the garment industry until recently when new companies entered the market with substitute products which posed a treat for Tight Fit Designs. It currently has three branches in Freetown, Bo and Makeni.

Prior to the competition, Tight Fit Designs has highly motivated staff who participated in decision-making of the company. The company also had a strong brand name. The new entrants attracted and employed some of the competent staff of Tight Fit Designs.

Gradually, Tight Fit Designs started losing its market share beaus the new entrants used promotional activities to attract some of the loyal customers of Tight Fit Designs. The Managing Director of Tight Fit Designs and his team tried a number of strategies to cope with the competition but with little success. Juliana Spain therefore decided to resign as Managing Director of the company and a new Managing Director was appointed.

The new Managing Director who has sound background in marketing introduced many strategies on how to increase the company's market share. He requested for a big promotional budget from the Board of Directors which was approved. These strategies attracted some of the old customers of Tight Fit Designs as well as new ones. However, the customers could not be retained.

- (a) State two approaches adopted by Julian Spain that led to the initial success of Tight Fit Designs.
- (b) State three challenges facing Tight Fit Designs.
- (c) Explain three promotional activities used by the new entrants to gain a share of the market.
- (d) Give three recommendations the new Managing Director of Tight Fit Designs can do to improve on the performance of the company.

Candidates' performances in some questions were encouraging whilst in others were disappointing.

Question 1 which was the case study was well answered by majority of the candidates that attempted it.

QUESTION 2

- (a) What is a certificate of deposit?
- (b) Outline six characteristics of a negotiable instrument.

Posed serious challenges to the candidates that attempted it as most of them got it wrong. Candidates were required to define certificate of deposit; and the correct answer is - "A certificate of deposit is a bank's note or an instrument evidencing a promissory acknowledgement by a bank for a receipt of money with an agreement to repay it at a fixed date with interest." Also candidates were required to outline six characteristics of a negotiable instrument which are as follows:-

- (i) It must be in writing,
- (ii) It must be signed by the maker or drawer,
- (iii) It must be an unconditional promise or order to pay,

- (iv) It must state a fixed amount of money,
- (v) It must be payable on demand or at a definite time,
- (vi) It must be payable to order or bearer, unless it is a cheque,
- (vii) The parties to the instrument must be clearly stated.

- (a) What is a brand name?
- (b) Explain six reasons for branding.

On the meaning of brand name and reasons for banking were well answered by candidates who attempted it.

QUESTION 4

- (a) Explain the following roles of managers:-
 - (i) Decisional role;
 - (ii) Informational role;
 - (iii)Interpersonal role.
- (b) List three characteristics of an entrepreneur.
- (c) Explain three management functions.
- (a) Was not correctly answered by majority of the candidates that attempted it. However, the (b) part on the characteristics of an entrepreneur and (c) on management functions were correctly answered by the candidates. The correct answers for roles of managers are:-
 - (i) <u>Decisional role:</u> The manager plays the role when making changes in policies, resolving conflict, or deciding how best to use resources.
 - (ii) <u>Informational role:-</u> This requires a manager to provide knowledge, news or advice to employees. A manager plays this role by holding meetings or finding other ways of letting employees know about important business activities.
 - (iii) <u>Interpersonal role:</u> A manager plays this role by providing leadership with an organisation or interaction with others outside the organisation

QUESTION 5

- (a) What is recruitment?
- (b) List four internal sources of recruitment in an organisation.
- (c) Explain four advantages of internal recruitment.

On meaning of recruitment, internal sources of recruitment and the advantages of internal recruitment were well answered by the candidates.

- (a) Explain the following types of agents:
 - (i) Broker;
 - (ii) Auctioneer;
 - (iii) Factor.
- (b) Differentiate between del credere agent and a commission agent.
- (c) Abudu appointed Musa as his agent. Abudu got to know that Musa was accepting bribe in carrying out his work. Give three actions the principal could take against his agent.

Was on explanation of types of agents which most candidates got wrong. The correct explanations are as follows:-

- (i) <u>Broker:-</u> This is an agent who brings the principal into a contractual relationship to buy or sell goods or services with a third party.
- (ii) <u>Auctioneer:-</u> This is an agent authorized or empowered by how to sell goods for the principal at a public auction to the highest bidder.
- (iii) Factor:- This is an agent who is employed to sell goods delivered to him by the principal for a commission. He has possession of the goods and can sell in his own name.

The (b) part of question 6 was also answered wrongly. The correct answer should be Del credere agent is an agent who for an extra commission, promises to indemnify his principal against any loss which may arise as a result of the buyer's in ability or refusal to pay for the goods supplied to him, whereas commission agent is a merchant who buys and sells goods on

Commission – This agent usually exercise physical control over and negotiates the sales of the goods which are handled by him. The (c) part of question (6) on actions the principal could take against his agent was correctly answered by majority of the candidates.

QUESTION 7

- (a) Differentiate between data and information.
- (b) Outline six uses of computers in business.

On data and information including uses of computer in business were correctly answered.

- (a) Explain each of the following principles of insurance:
 - (i) contribution;
 - (ii) proximate cause;
 - (iii) subrogation.
- (b) List and explain three tools of monetary control.

On the explanation of contribution, proximate course and subrogation as insurance principles were correctly explained by most of the candidates. Also, majority of the candidates were able to list and correctly explained tools of monetary control.

CLERICAL OFFICE DUTIES 2

1. GENERAL COMMENT ON THE PAPER AS A WHOLE

The standard of the paper mark the level of examination. It covers wide areas of the syllabus. Comparatively, candidates' performance is better than the previous years. However, the performances of few candidates were affected by lack of clarity in expression and their ability to differentiate among the various concepts. This is opponent in their explanation, definitions and listing of responses to the various questions.

2. CANDIDATES STRENGTHS

It is observed that candidates generally performed well on the bookkeeping aspect. This suggests that they can handle or cope with arithmetic and calculations. They need to be encourage regularly practice topic in bookkeeping. Also, they are able to handle topics that have to do with following procedures and rules. Regular studies can help then to further improve on this quality.

3. <u>CANDIDATES' WEAKNESSES</u>

Some of the candidates cannot express themselves well. Their responses to questions were incomplete. They cannot handle application questions (the case study) well. Some also have low level of knowledge on topics like organizational structure, methods of p ay ment and taxation.

4. DETAILED COMMENT ON INDIVIDUAL QUESTIONS

QUESTION 1

Read the case below carefully and answer the questions which follow:

BAMBELLA TRAVEL AGENCY AND CONSULTANCY SERVICES

Bambella travel agency and consultancy services commenced operations last year. Its office was located very close to Freetown Airport, so callers and intending travelers used to move in and out of the Agency's office on daily basis. They used to walk in straight to any office without any staff to welcome or keep any record about them until last week when Miss Salome was employed for that purpose. The first office equipped with different types of visual aid was allocated to her.

Miss Jennifer was the desk officer for customer services. Her office was provided with copied of telephone directories, classified directories, yellow pages and directory of directors. Other books in Miss Jennifer's office were Atlas, ABC world Airways guide and tourist' guide. Despite the provision of these books, she was always confused on the which of them to refer to for certain information requested by clients because she just joined the agency two months ago.

On 30th January, the accountant, Mr. Daniel directed Mr. Peterson, the account clerk, to go and lodge Le 60,000 into the Agency's Bank Account. He requested him to collect the Agency's Bank statement from July to December of the preceding year. On his

return, Mr. Peterson handed over to Mr. Daniel both the bank statement and a duly certified document showing that he had lodged the Le 60,000 into the Agency's account.

- (a) (i) What is Miss Salome's position in Bambella Travel Agency and consultancy services?
 - (ii) Suggest two types of visual aid in Miss Salome's office.
 - (iii) Mention the book she needed for doing her work and list four items it contains.
- (b) Assist MISS Jennifer by telling her two items of information' she could find in each of the following reference books:
 - (i) Telephone directory;
 - (ii) Atlas;
 - (iii) ABC World Airways Guide;
 - *(iv) Tourist's guide.*

(c)(i) Beside the agency's bank statement, name the other bank document Mr. Peterson handed over to Mr. Daniel.

(ii) State two use of the bank statement Mr. Daniel asked Mr. Peterson to collect.

Candidates were asked to identify two types of visual aid required in the reception room. Most candidates were unable to differentiate between visual aid and audio visual aid. Therefore most of the responses were items of audio visual aid and audio aid.

- (i) Most candidates don't know the name of the book used by the receptionist and its consent. They identify the wrong book (attendance register) and the wrong information.
- (c) Some candidates lack understanding about the information contained in the telephone directory, Atlas, ABC world Air way guide and tourist guide.
- (d) Only few candidates know the importance of banks statement. They rather state the content of a bank statement. It will be good if specimen of business documents source documents are brought to class as in order to help candidates gain better understanding.

QUESTION 2

- (a) State two disadvantages of line organization structure.
- (b) State three Advantages of:
- (i) Functional organization structure;
- (ii) Matrix organization structure.

(a)(1) Requires candidates to give two disadvantages of line organizational structure. And (ii) Asked candidates to give the advantages of matrix organizational structure. Candidates were unable to provide the required responses. They rather give the functions of organizational structure. Teachers need to practicalize their levelling of this topic for better understanding.

(a) Give four factors to be considered before purchasing a new office machine.

Candidates were required to give four factors to be considered before purchasing a new office machine. Candidates were able to clearly give the required responses.

(b) State four ways of taking care of office machines.

Candidates were asked to outline four ways of taking care of office machine. Candidates were also able to provide the required responses. Candidates can do better if they have the opportunity to visit offices and talk to their personnel on the purchase and use of office machines.

QUESTION 4

(a) Explain human relations.

In question (a) candidates were asked to define human relations. A good number of them gave the wrong definition and some gave vague explanation misunderstanding the concept. It will help if teachers explain this concept using stories relating to the lane, community and candidates social clubs.

(b) List twelve personal qualities of an office worker.

In question (b) candidates were asked to give twelve personal qualities of an office employee. Most of the responses were correct. However some mixed the various qualities of office workers i.e. personal and business qualities. A better understanding will be developed with good explanation and scenarios.

QUESTION 5

(a) List four methods of payment available to an organization

- (b) Explain the following types of tax regime:
 - (i) Goods and services tax/value added tax;
 - (ii) Income tax;
 - (iii) Property tax.
- (c) State three objectives of government for collecting taxes.

In question candidate's performances are on the average. Some misunderstood the question and provided the wrong responses. Candidates should be provided with clear understanding on the various means of payment and types of transactions to avoid the misunderstanding.

(c) Candidates were required to define the following: value added Tax (VAT) or goods and Services Tax (GST), income Tax and property Tax. Some of the responses were Vague and out of the context of the discipline.

However, others were able to respond appropriately. What is needed are explanations with clear examples.

The performance for question (c) which requires giving the objectives of tax collection was also good.

(a) State three duties of the chairman at a meeting.

(b) Outline five activities of the secretary in preparing in preparing for a meeting.

Though candidates were able to respond well to these questions, some misunderstood the requirements of the questions. This misunderstanding has to do with the timing of performing a particular duty by chairman and secretary. Proper attention on the requirement of the question can solve this problem.

QUESTION 7

Enter the following transactions in the petty cash book of Jossy Appiah for the month of august 2013 and state how much the petty cash would be given as reimbursement on august 31, 2013.

August 1 – a float of GH \emptyset 500.00 was given to the petty cashier; August 6- bought a carton of envelopes GH \emptyset 100.00 August 8 – bought postage stamps Gh \emptyset 50.00 August 10 – paid taxi fare for messenger's Gh \emptyset 20.00 August 12- bought provisions for tea Gh \emptyset 60.00; August 15- bought a packet of carbon paper Gh \emptyset 5.00 August 18- paid bus fare for clerk Gh \emptyset 10.00 August 23- bought postage stamps Gh \emptyset 80.00 August 30 – paid taxi fare for sales girls GH \emptyset 50.00

It required the proportion of a petty cash book which candidates responded to well.

FINANCIAL ACCOUNTING 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The paper was standard and questions were within the structure of the syllabus indicated by the examining body (West African Examination Council). The performance on average was at par with previous paper as shown by the output results. Items used to test the basic understanding of the principles of financial accounting and its application shows that candidates have the Knowledge and figurative skills on how to solve problems relating to standard accounting practices.

2. <u>CANDIDATES' STRENGTHS</u>

Most of the candidates express their understanding in certain questions which was good especially in questions number 2, 3, 6, 7 and 9. Some of these candidates even scored the maximum marks related to some of these questions.

Candidates should always cross – check to ensure that proper addition, subtraction, multiplication or division must be completed more carefully and accurately in order to obtain more grades.

There were wrong placements of information along figure which is another problem that affected the performance of candidates during the examination. There could be effective change on these issues only if teachers stress on students during their normal classes.

3. <u>CANDIDATES' WEAKNESSES</u>

- Some candidates lack the basic calculation skills and cannot apply it on simple arithmetical concept.
- Teachers should ensure that the basic steps related to the various topics treated are well grounded for a better understanding by the candidate's especially double entry concept.
- The theoretical aspects in financial accounting is a problem as teachers mostly do not treat these areas before embarking on the practice area in the various topics. This causes candidates not to be familiar with questions related to section A of the paper presented for exams.
- Inadequate knowledge of the subject matter by some candidates causes them to have low grades which may affect their results.
- Candidates should be encourage to practice questions related to each topic either individually or as a group for them to be well grounded with the subject matter.
- Teachers should use different methods in answering Financial Accounting questions which encourage candidates to have option of choice as it would be of great help to them.

1. <u>DETAILED COMMENTS ON INDIVIDUAL QUESTIONS</u> <u>QUESTION 1</u>

(a) Mention three disadvantage to a business that does not keep proper accounting records.

Suggested answers:

(a) Disadvantages of not keeping proper accounting records

- (i) Inability to ascertain accurate profit or loss
- (ii) It could lead to wrong assessment of tax
- (iii) Possibility of arbitrary spending leading to business collapse.
- (iv) Fraud and dishonesty cannot easily defected
- (v) It could lead to loss of vital business records
- (vi) It makes it difficult to prepare financial statement
- (vii) It could lead to difficulty of planning business activities
- (viii) It could lead to inaccurate decisions
- (ix) Credit facilities could be difficult to obtain

(b) Explain the following characteristics of accounting information:

- (i) Relevance;
- (ii) Comparability;
- (iii) Consistency;
- (iv) Reliability

Characteristics of accounting information

- (i) Relevance: Accounting information is relevant if it is useful for the intended purpose.
- (ii) Comparability: accounting info ration should be capable of being compared with those of similar or different entities and from one period to another.
- (iii) Consistency: it requires accounting information to be prepared following similar procedures and methods.
- (iv) Reliability: it requires accounting information to be verifiable and factual.

(c) State two limitations in the use of accounting information for business decision making.

Limitation in the use of accounting information.

- (i) The use of historical cost reduces the relevant in making current decisions.
- (ii) Information that can be measured in monetary terms is not record and makes the information incomplete.
- (iii) Possibility of error can reduce the usefulness of information
- (iv) Where precise information not available, accountant rely on estimate which may be inaccurate for decision.
- (v) Some businesses window dress their financial statement hereby misleading users.
- (vi) Different accounting policies are used which makes comparism misleading

Most candidates were able to list the points but could not discuss the details and could not obtain maximum marks.

(a) Explain with examples the following components of cost in a manufacturing account.

- (i) Direct material cost
- (ii) Direct labour cost
- (iii) Factory overhead.

Suggested answers:

- (a) Cost components of a manufacturing account
- (i) Direct material cost: this is the cost of physical input/ raw materials that can easily be traced to the unit producers e.g. wood for furniture, leather for shoes ,orange for juice
- (ii) Direct labour cost: this is the cost of human effort that is used in the processing of materials that can be traced to the finished product. E.g. wages of factory workers.
- (iii) Factory overhead: this refers to indirect production cost that are incurred in the production processing of goods e.g. factory rent, lubricant etc.
- (b) Describe the three types of stocks in a manufacturing concern.

Types of stock in a manufacturing concern

- (i) Raw material: these are unprocessed materials that make up the initial input in the manufacturing process.
- (ii) Work –in- progress: these are incomplete / partly processes materials that required further processing
- (iii) Finished goods: these are fully completed goods produced and ready for sale which can be kept in the store.

QUESTION 3

- (a) Which business organizations have the need to prepare departmental account?
- (b) State two reasons for preparing departmental accounts
- (c) State how the following incomes and expenses are apportioned in departmental accounts.
 - (i) Discount allowed
 - (ii) Discount received
 - (iii) Rent and rates
 - *(iv)* Staff related cost
 - (v) Depreciation
 - (vi) Canteen expenses
 - (vii) Electricity
 - (viii) Advertising
 - (ix) Bad debts

Suggested answers:

- (a) Business organizations that have the need to prepare departmental accounts.
- (i) Large general stores with separate department
- (ii) Insurance companies life marine, motor burglary
- (b) Reasons for preparing departmental accounts.
- (i) To ascertain the profit or loss for each department
- (ii) To compare performance of departments over years

- (iii) To assist management in decision making on which department to support or drop (close down)
- (iv) To assist management in its effort to control cost
- (v) To provide a basic for rewarding staff
- (vi) To stimulate competition among depart
- (vii) To enable management to apportion expenses to various department.
- (viii) To assist management in formulating policies
- (c) Apportionment of incomes and expenses in departmental accounts.
- (i) Discount items allowed _ sales of each basis department
- (ii) Discount received purchases of each department
- (iii) Rent and rates floor spaces /area occupied
- (iv) Staff related cost number of employees in department
- (v) Depreciation $-\cos t$ of fixed asset
- (vi) Canteen expenses number of employees
- (vii) Electricity floor space or area occupied
- (viii) Advertising value of sales
- (ix) Bad debts credit sales

This was a clear –cut straight forward questions in which most of the candidates who attempted it scored high grades.

QUESTION 4

(a) List six user of accounting information

Suggested answers:

(a) User of accounting information.

(ii) Management	(ii) employees
(iii) Government agencies	(iv) investors
(v) Bankers/ lenders `	(vi) customers / debtors
(vii) Suppliers/ creditors	(viii) Trade union
(Ix) Trade association	(x) general public
(xi) Shareholders / owners	(xii) financial analysts.

(b) State the formula and the use of each of the following accounting ratio.

- (i) Quick ratio
- (ii) *net profit margin*
- (iii) total assets turnover
- (iv) creditors payment period (in days)

Formula and use of ratio:

(i) Quick ratio: <u>current asset – stock</u> Current liability

It is used to measure the ability of a business to pay its short term debts form current assets a far removing stock.

(ii) Net profit margin: Net Profit X 100 = %

This ratio is used to determine the net profit earned on the currency of sales, made by the business

(iii) Total assets turnover: <u>sales</u> X 100=%

Total assets

It is used to measure how efficient a business can use its assets to general sales.

- (iv) Creditors payment period (in days)
- (v) <u>Total creditors</u> x 365 days Creditor purchases

This ratio measures on the average, the number of days that the business takes to pay its trade creditors.

Most candidates that attempted this question only outlined the formula along, leaving out the uses of the ratio which cause them to have low grades.

QUESTION 5

Baako limited p	ourchase motor vehicles as fo	llows:
Date	quantity	amount GhØ
01 -01 13	1	800,000
01-07-13	1	400,000
01 -04- 15	1	600,000

The company adopts a straight line method of depreciation at the rate of 10% per annum from the date of purchase. A separate account is prepared for provision for depreciation.

On 30th June 2014 the motor vehicle which was purchased on 1^{st} July 2013 was sold for $GH \not C$ 240,000

You are required to prepare:

- (a) Motor vehicle account for the year 2013, 2014 and 2015
- (b) Provision for depreciation on motor vehicle account for the year 2013, 2014 and
- 2015.
- (*c*)

(d) Motor vehicle disposal account.

Suggested answer:

Baako Limited Motor Vehicle Account

		GH¢	
2013 – 1 Jan bank	GH¢	800,000	2013 – 31 Dec Balance C/D
1,200,000 1 July Bank		<u>400,000</u> 1,200,000	-
1,200,000 2014 -1 Jan balance b/d		1,200,000	2014 -30 th June

		1.	5
400 000		Motor vehicle Disposal	
100,000		31 Dec Balance c/d	
<u>800,000</u>	1 200 000		
1 200 000	1,200,000	<u> </u>	
2015 -1Jan Balance B/d	800,000	2015 - 31 Dec Balance c/d	
1,400,000			
1 April Bank	600,000)	
1 400 000	1,400,000)	
2016 -1Jan Balance B/d	1,400,000		
Drovie	ion for donn	nciation on motor vahiala appoint	
FIOVIS	sion for depre		
2013 – 31 Dec Balance c/d 100,000	100,000	2013 -31 Dec profit and los	S
2014 – June 30 Disposal 100,000	40,000	2014 – 1 Jan Balance b/d	
31 Dec Balance c/d	<u>160,000</u> 200,000	31 Dec Profit and Loss <u>100,00</u> 200,00	$\frac{0}{0}$
2015 – 31 Dec Balance c/d 160,000	285,000	2015 – 1jan Balance b/d	
		31 Dec profit and loss	
125,000	285 000		
285.000	283,000		
		2016 1 Jan Balance b/d 285,00	0
Motor	Vahiela Dig	nosal Account	
G	HC	GH¢	
2014 - 30 June motor vehicle 40	0,000	2014:	
		30 June Bank 240,00	0
40 000		30 June provision for depreciation	n
400,0	00	31 Dec profit and loss $\frac{120,00}{400,00}$	0
	_		·

• Most candidates were not aufait with this topic and those who attempted it could not score high grades.

QUESTION 6

On 31 December, 2016 the bank column of the cash book of Aminata Enterprise showed a debit balance of D 48,500. However, the bank statement showed a credit balance of D 54, 900 as on that date.

- (i) Customer's cheques amounting to D 8, 450 had not been credited by the bank as at 31-12-2016
- (ii) Cheques amounting to D 8,850 had not been presented for payment as at 31-12 2016
- (iii) Bank charges of D 1,000 and interest on investment of D 2500 collected by the banker appeared only on the bank statement.
- (iv) On 30 -12 2016 there was a wrong credit of D 3500 in the bank statement
- (v) Kesse enterprise, a customer, had paid into the bank directly the sum of D 3000 on 29th December, 2016. This had not been recorded in the cash book
- (vi) A cheque for D 2,000 received from Jallo Enterprise, a customer, which was deposited had been returned unpaid. This had not been entered in the cash book You are required to:
 - (a) Write up the adjusted cash book

(b) Prepared a bank reconciliation statement as at 31-12-2016. Suggested answers:

Am	ninata Enterprise		
Ad	justed cash book		
D		Ī	D
31-12-2016 balance b/d 48,500	31-12-2016	bank charges 1,	000
31-12-2016 interest received 2,500	31 - 12 - 2016	jallo Enterprise 2,	000
31 - 12 - 2016 Kesse enterprises <u>3,000</u>	31-12-2016 I	Balance c/d 51	1,000
54,000		54,000	
Bank reconciliati	on statement as at 31 -1	2 2016	
D	D		
Balance as per adjusted cash book		51,000	
Add unpresented cheques	8850		
Wrong credit in bank statement	3500	12,350	
		63,350	
Less uncredited cheques		8,450	
Balance as per bank statement		54,900	

Candidates were well grounded in this topic as it has been regular. Mistakenly some of the information were misplaced alongside the figures.

QUESTION 7

Olu a sole trader has the following financial details for the year ended 31 st	December,	2016.
Cash Book (summary)		

	N	N
Balance	6,000 creditors	12,000
Sales	10,000 salaries	5,000
Debtors	20,000 rent and	rates 4,000
	Insurance	1,000
	Balance c	/d 14,000
	<u>36,000</u>	36,000
Additional information:		
-	1 st January 2016	31 st December 2016
Stock	4000	2000
Land and building	15,000	15,000
Motor vehicle	6000	4,000
Debtors	2,000	3,000
Creditors	1,000	500
Insurance owing	2,000	6,000
You are required to prepare:		
(a) Statement of affairs as 1	1 st January 2016	
(b) Trading, profit and loss	Account for year ended 31 st D	December, 2016.
(c) Balance sheet as at 31^{st}	December, 2016.	

Suggested answer:

00		Olu		
	Statem	nent of Affair as At Ja	nuary 1 st 2016	
Capital Current liabilities		30,000	Fixed Assets land and build motor vehicle	N 15,000 <u>6,000</u>
Creditors	1,000		current Assets	21,000
Insurance owing <u>12,000</u>	<u>2,000</u>	3,000	stock Debtors Cash	4,000 2,000 <u>6,000</u>
<u>33,000</u>				
		Total Debtors Acc	count	
Balance b/d Credit sales Balance b/d	2,000 <u>21,000</u> <u>23,000</u> <u>3,000</u>	cas balance c/o	sh d	20,000 <u>3,000</u> <u>23,000</u>

	,	Total (Credito	rs Accou	unt		
		Ν				Ν	
Cash	12,00	0	balan	ce	b/d	1,000)
Balance c/d	500	cr	edit pu	rchases		11,500	
	12,50	00	-			12,50	<u>)0</u>
			Balar	nce b/d		500	
Total sales							
Cash sales + credit sales =	= total sales						
N 10,000 + N21,000 = N	131,000						
			•				
Olu Trading, P	rofit and Lo	ss Ac	count f	or the ye	ear endec	131 st Decemb	er 2016
			Ν				N
Opening stock			4,000)	sales (2	21,000 +10,00	00) 31,000
Add purchases			<u>11,5(</u>	00			
			15,50	00			
Less closing stock			200	0			
-			13,50	00			
Gross profit c/d			17,50	00			
			31,00	00			31,000
Salaries			5,000)	gross p	orofit b/d	17,500
Rent and rates		4000			• •		
Insurance (6000+1000 -	2000)		5000				
Depreciation: motor Veh	icle		2,000)			
Net profit			1500				
-			17,50	00			<u>17,500</u>
				I			
	Olu Balan	ce She	eet as at	31 st De	cember2	2016	
		N					Ν
Capital		30,00	00	fixed	assets		
Add net profit		1,50	00		land ar	nd building	15,000
				Motor	vehicle	6.000	

Current liabilities: current assets: 2,000 Creditor 500 stock 3,000 Insurance owing 6,000 debtor 6500 19,000 Cash 14,000 38,000 38,000

Less depreciation

2,000 <u>4,000</u> 19,000

Most the candidates did not answer this question as their answers were far from what was required. Candidates were not well grounded in this topic.

QUESTION 8

Boyson social club presented the following statement for the year ended 31st December, 2016 Boyson Social Club

	Receipts and Paym	ient Account
	Le	
Le		
Balance b/f	5,70	0 maintenance of building
12,600		
Subscriptions	54,500) maintenance of grounds
6,400		
Bar sales	13040) prizes for fun fair
8400		
Fun fair proceeds	4300	0 bar purchases
8000		
Donations	2,00	v par expenses
2,000 Life membership dates	E 40) fun anglown ang ag
Lye membersnip aues 10.200	5,40	U juneral expenses
Sale of magazine	1256	60 staff salaries
30.000	1200	so stag sutur tos
		General expenses
3600		
		Donation to hospital
12.500		
,		Printing of magazine
5300		
		Balance c/d
11,000		
,	<u>97,5</u>	5 <u>00</u>
<u>97,500</u>		—
Additional information:		
-	01 -01 -16	31-12-16
	Le	Le
Subscription in arrears	3,900	7,400
Subscription in advance	8,400	6,300
Bar debtors	2,630	3930
Bar stock	1,500	2,200
Bar expenses owing	540	370
Five new members had not pa	id membership clues of L	e 300 each for the year.
You are required to prepare for (a) Subscriptions account	or Boyton social club for t	the year ended 31 - 12-16

(a) Subscriptions account(b) Bar Trading Account

(c) Income and expenditure

Suggested answer:

			Boyson	n Socia	al Club		
			Subscr	iption	Account		
Balance b/f Income and expendi	ture		(Le 3900 50,100	balance b/f bank		Le 8400 54,500
Balance c/d			6300) bala	ance c/d	7400	
Balance b/d			<u>70300</u> 7400		balance b/d	<u>70,300</u>	6300
			Bar De	bto <u>rs</u> A	Account		
Balance b/d			2630		balance c/d		3830
Bar credit sales			1300				
			<u>3930</u>				<u>3930</u>
Balance b/d			3930				
Bar T	rading A	ccount	for the	year er	nded 31 -12-16		
Opening stock		1500			sales (13040+1300)	14340	
Purchases		8,000					
		9500					
Less closing stock		2200					
		7300					
Gross profit c/d	7040						
	14340						14340
Bar expenses:				gross	profit b/d	7040	
(2000 + 370 + 540)	1830						
Bar profit	<u>5210</u>						
	7040					<u>7040</u>	

Boyson Social Club

meonie una Expenditai	er recount r	of the year ended 51 December 2010	
Expenditure	Le	income	Le
Maintenance of building	12,600	subscription	60,100
Maintenance of grounds	6,400	bar profit	5,210
Prizes for fun fair	8400	fun fair	4,300
Funeral expense	10,200	donations	2,000
Printing of magazine	5300	life membership	6,900
Salary of staff	30,000	sale of magazine	12,560
General expenses	3,600		
Donation to hospital	12,500		
-	89,000		
Surplus of income over expenditure	2,070		
1 I	91,070		<u>91,070</u>
		•	

Income and Expenditure Account for the year ended 31 st December 2016

Most of the candidates were not aufait with this topic and those who attempted it, some of them mixed up the positioning of the information which caused them to have low grade.

QUESTION 9

The trial balance of Obinah for the	year ended 31 st De	cember, 2016 was p	rovided as follows:
		N	N
Capital			630,000
Drawing		69,000	
Opening stock		300,000	
Purchases and sales		1,050,000	1,200,000
Returns		15,000	18,600
Debtors and creditor		29,400	21,000
Provision for doubtful debts			2,400
Salaries		90,000	
Rates		18,000	
Insurance		93,000	
Telephone		3,000	
Furniture at cost		120,000	
Machinery at cost		90,000	
Provision for depreciation: furnitur	re	,	30,000
Mach	inery		15,000
Bad debts	-	600	
Bank balance		39,000	
		1,917,000	
1,917,000			
Additional information:			
Closing stock 31 -12-16	360,000		
Rates prepaid	1,500		
Telephone outstanding	660		
Accrued salaries	15,000		
Provision for doubtful is to be incre	ase to 10% of debto	ors	
Depreciation on furniture at 10% o	n book value		
Depreciation on machinery at 20%	on cost		
You are required to prepare for Ob	inah the trading, pr	ofit and loss Accou	nt for the year ended
31 st December. 2016 and a balance	sheet as at that date	2.	

Suggested answer

OBINAH

Trading Profit and Loss Account for the year ended 31 st December 2016				
Opening stock	300,000	sales	1,200,000	
Add purchases 1,050,000		less returns in ward	15,000	
Less return out ward 18,000		net sales	1,185,000	
	1,031,400			
Less closing stock	360,000			
	971,400			
Gross profit c/d	213,600			
	1,185,000		1,185,000	

Less expenses:				
Salaries	90,000		gross profit	b/d 213, 600
Add accrued	15,000	105,000	net loss	32700
Rates	18000			
Less prepaid	1500	16,500		
Bad debts		600		
Provision for dou	btful debts	540		
Telephone 3,	000			
Add outstanding	660	3,660		
Insurance		93,000		
Depreciation furn	niture	9,000		
Ma	achinery	18,000		
	•	246,300		<u>246,300</u>

Balance Sheet as at 31 st December 2016					
Capital		630,000		fixed assets	
Less net loss		32,700		machinery	90,000
		597300		less depreciation	33,000
57,000				-	
Less drawing		69,000		furniture	120,000
		528,200		less depreciation	39,000
81,000				_	
Current liabilities				current assets	
Creditors	21,000			stock	360,000
Owing salaries	15,000			debtors 29,400	
Accrued telephone	660			less provision 2940	26,460
-		<u>36,660</u>	bank	39,	000
				Prepaid	1,500
426,960				-	
		<u>564960</u>			
<u>564,960</u>					

Most candidates were aufait and well grounded with this topic and score high grades. It was clear cut forward question.

PRINCIPLES OF COST ACCOUNTING 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The questions were within the ambit of the syllabus. Candidates performed worse than performed worse than previously though a few candidates score over 80% of the total marks.

Candidates still have problems with basic calculations. The physical structure of the paper which required candidate to turn over one page to read the questions and turn to another page was no instance of foreign materials with exactly the same question.

Poor supervision and invigilation was evident in some centres. This needs to be given attention

2. <u>CANDIDATES' STRENGTHS</u>

There were very good performances in questions 1, 6& 8. Candidates could improve on their grades by practicing more questions and improving on their calculation skills.

3. <u>CANDIDATES' WEAKNESSES</u>

Some candidates in some halls seem to have copied some wrong answers. The use of calculators made it easier for them to give answers without the steps required thus missing marks.

Candidates should try to be aufait with all the topics in the syllabus. It was evident that some candidates had no idea on some topics poor supervision was also evident in some centres.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

- (a) list five qualities of good cost accounting information
- (b) State five difference between financial accounting and cost accounting.

TOPIC INTRODUCTION

Candidates were required to list five qualities of good cost accounting information and state five difference between financial accounting and cost accounting. Expected answers:

- (a) Good cost accounting information should be
 - Simple and clear to understand ;
 - Relevant for the intended purpose;
 - > Available at the time it is needed;
 - Economical or cost effective
 - Objective and free from personal bias;
 - Capable of being verified;
 - Obtained from a reliable source;
 - Brief and contain only important information

- Adequate for intended purpose;
- Sufficiently accurate
- Comparable with other cost information.

(b) Differences between cost accounting and financial accounting

	Financial Accounting	Cost Accounting
(i)	Financial Accounts are statutory requirements	Cost Accounts are not statutory
		requirements
(ii)	Information is for both internal and external use	Information is purely for internal use
(iii)	Information is based on part or historical cost	Past and current data used to predict
	and revenue	the future
(iv)	Reports are made on the profitability of a	Information is provided for the
	business	ascertainment and of control of costs.
(v)	Financial statements are prepared for the entire	Cost statements may be prepared for
	organization	any section of an organization
(vi)	There are guide lines and principles that should	Cost statement are prepared to suit the
	be followed in the preparation of statements.	need of an organization
(vii)	Financial accounts are prepared regularly	Cost accounts are prepared when
		management required it.

Some candidates scored maximum marks and majority of the candidates showed great understanding of this topic. However some candidates mismatched the difference and thus lost marks in 1(b) these are the first areas that require much understanding teachers should ensure that beginners must understand the introductory area before going head.

QUESTION 2

(a) Explain the reason why overhead absorption rate should be predetermined

(b) Explain over-absorption and under absorption of overheads

(c) State the difference between overhead apportionment and overhead absorption(d)

Candidates were required to explain why overhead absorption rate should be predetermined explain over- head of overheads of overhead, and state the difference between overhead apportionment and overhead absorption.

Expected answers:

- (a) Overhead absorption rates should be predetermined to include a portion of overheads in the determination of cost of products that are completed before the end of the year in order to determine the selling price
- (b) Over –absorption of overheads is the situation where total overheads absorbed using predetermined rates are higher than the actual overheads incurred.

Under- absorption of overheads in the situation where total over heads absorbed using predetermined rates are less than the actual overheads incurred

(c) Overhead apportionment is the distribution of common costs like rent, rate which relate to the business as a whole to all departments on some equitable basis such as floor space and number of employees while overhead absorption is the recovery or charging of overheads to products and services. Candidates expressed deep understanding of the (b)

part but failed to obtain maximum marks because the (a) part was either ignored or could not be answered well. A few of them brought out the difference between overhead apportionment and overhead absorption.

This topic is usually answered well when practical question are set on them. Teachers should always by to explain the theory in every topic before embarking on the practical aspect.

QUESTION 3

(a) Explain standard costing

Topic Standard Costing

Candidates were required to explain standard costing and explain four types of standards used in industries.

Expected answer:

Standard costing is a technique which establishes predetermined estimates of the costs of products and services and then companies these predetermined costs with actual costs incurred for analysis of any variances.

(b) Explaining four types of standard used in industries.

Types of standards

- (i) Ideal standard this is the standard based and perfect operating conditions and does not given room for any losses, water or machine breakdown.
- (ii) Attainable standard: this is a standard on efficient but not perfect operating conditions. This standard gives allowance for normal operating losses.
- (iii) Basic standard: this standard is designed to be used over a long period of time. It remains unchanged from year to year unless some physical features of relevant operation are attended.
- (iv) Current standard: this is a standard established for use over a short period of time and it relates to current working conditions.

Most candidates misunderstood 'standard cost for standard costing. Standard costing is a technique whilst standard cost is a cost.

Most of standards, however they couldn't obtain maximum points because some could not explain the well. A few of the candidates went out of topic by writing about fundamental standard etc.

QUESTION 4

(a) What is budgetary control?

- (b) Explain the objective for preparing the following subsidiary budgets:
 - (i) Cash
 - (ii) (ii) production
 - (iii) (iii) sales
 - (*iv*) (*iv*) capital expenditure

Topic: Budget & Budgetary Control:

Candidates were required to define budgetary control' and explain the objective for preparing the following subsidiary budgets:

(i) Cash (ii) production (iii) sales (iv) capital expenditure. Expected answers

- (a) Budgetary control is a control technique where by actual result are compared with budgets and any difference are identified and corrected.
- (b) (i) The objective of preparing the cash budget is to be able to plan cash receipts and payment to ensure that sufficient cash is available at all times to meet the level of operations.
- (ii) The objective of preparing the production budget is to plan production in terms of quantity and cost of products, to meet expected soles demand and considering the resources available.
- (iii) The sales budget is prepared to meet forecast demand considering available resources and production.
- (iv) Capital expenditure budget is prepared to plan investment in long term assets to meet expected expansion in operation considering the cash and other resources available.

Candidates defined budget instead of budgetary control. Also instead of the objects of preparing the subsidiary budgets most candidates discussed them. There was thus a complete misunderstand of the question. Candidates should make sure they study the questions well and have a thorough understanding before attempting them.

QUESTION 5

Enjoyment limited produce sweet dee" according to customer' specifications. The company received an order for 250 units which it had produced and delivered. Detailed of the inputs required to produce a unit of "sweet dee" are as follows: Direct materials Pee 4kg @ Gh¢6per kg Kay 5kg @ Gh¢ 9 per kg Direct labour: Grade A 12 hours@ Gh@12 per hour Grade B 6 hours (a) $Gh \mathcal{C}$ 4 per hour Direct expenses Gh *Q* 24 **Overhead 25% of direct wages** You are required to prepare a statement showing the: (a) Cost of producing one unit of "sweet dee"; (b) Profit on the sales of the order for 250 unit at a margin of 25%

Methods – Job/ Batch Costing.

From a given set of data candidates were required to calculate unit cost and profit for a given batch.
Enjoyment Limited.				
Statement of unit cost of produc	ing sweet December	er		
	GH¢	GH¢		
Direct materials:				
Pee 414@ Gh@ 6 24				
Kay 5kg@GHC9 45		69		
Direct labour:				
Grade A 12 hrs @ GHC 12 144				
Grade B 6 hrs $@$ GHC 4 24		168		
Direct expenses:		24		
Prime cost		261		
Overhead 25% of direct labour (25% of 168)		<u>42</u>		
Production cost		<u>303</u>		

Expected answer:

Statement of profit on sale of 250 units of sweet December	
Cost of production (250 units X GHC 303	75,750
Profit on cost (25/75 x GHC 75,750)	25,250
Sales	<u>101,000</u>

Few candidates scored maximum marks. Some candidates couldn't go beyond the calculations for direct materials. They showed lack of basic mathematical skills as they couldn't even multiply. They also had problems with converting for margin to mark –up. Teachers should note the following points in dealing with Job/ batch costing.

(a) Materials: various units of materials could be used at different prices. Multiply units by unit price to set total price for each materials.

(b) Labour: different garden of labour could be given there is need to multiply no - of hours by the rate.

(c) Calculation of prime cost: prime cost = direct material + direct labour + direct expenses

(d) Overheads could be given as a percentage of direct labour or prime cost.

(e) Margin may be given : it is necessary to covert margin to mark up to calculate profit

(f) Profit + production cost = sales.

QUESTION 6

Dodzi manufacturing is planning its production operations for its product champion rice for the next year.

Information for the past year showed the following:

Production (bags)	cost D
24,000	1,296,000
38,000	1,800,000

A bag of rice is sold for D 51 and the business is targeting a profit of D 300,000 for the next year.

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You are required to calculate:

(a) Variable cost per unit;

(b) Contribution per unit;

(c) Fixed cost;

(d) Break –unit point in units;

(e) Break- even point in sales value;

(f) Number of bags to be produced and sold to meet the target profit.

Topic- Break – Even Analysis

Using high and values of production units and cost candidates were required to calculate.

- (g) Variable cost per unit;
- (h) Contribution per unit;

(i) Fixed cost;

- (j) Break unit point in units;
- (k) Break- even point in sales value;

(l) Number of bags to be produced and sold to meet the target profit.

Expected Solution

1		Dodzi Manufacturing	
(a)	Prod	uction (bags)	cost D
(4)	High	38.000	1.800.000
	Low	24,000	1296,000
	Different	14,000	504,000
	Variable co	st per unit = D 504,000	
		14,000	
		= <u>D 36</u>	
(b) Coi	ntribution per ur	nit = selling price – variable cost	
		D 51 – D36	
		= <u>D15</u>	
(c) Fix	ed cost = total co	ost – variable cost	
	= D 1,80	0.000 – (D 36 X 38,000)	
	= <u>D</u> 4	<u>132,000</u>	
	Or		
	D 1,296,000	$D - (D 36 \times 24,000) = D 432,000$	
(d) Bre	ak –even point	in units = $fixed cost$	
		Contribution per unit	
		= D <u>432,000</u>	
		D15	

= 28,800 bags

(e) Break – even sales = fixed cost X selling price

Contribution per unit $= \underline{D \ 432,000 \text{ x } \text{D } 52}$ $D \ 15$ $= \underline{D \ 1.468.800}$ Or break -even point in units x selling price = 28,800 x D 52 $= \underline{D1.468.800}$

(f) Production to achieve targeted profit

 $\frac{\text{Fixed cost x target profit}}{\text{Contribution per unit}} = \frac{432,000 = D 300,000}{15} = \frac{48,800 \text{ bags}}{1000}.$

Most candidates who attempted this question showed thorough understanding of the topic. However some could not get maximum marks because they left out the equations. Some candidates didn't get the variable cost because they were not aufait with using the difference of high and low values. Teachers should ensure that they teacher all possible alternative methods.

QUESTION 7

Grace International School is in the process of billing students for the next term. The school comprises 400 boarding students and 2,000 day students.

Cost estimates for the term are as f	follows:
Feeding	Le 72,000
Electricity	16,000
Water	8000
Transportation	10,000
Uniforms	24,000
Hostel fees	18,000
Maintenance	6,000
Incidentals	12,000
Tuition	480,000
Administration	43,200
	689,000
Additional information:	

Additional information:

- Feeding and hostel cost are to be charged to boarders only.
- 25% of electricity and water cost is to be charged to boarders.
- 90% of transport cost is to be charged to day students.
- All other expenses are to be charged to all students equally.

Topic: Costing Methods - Service Costing.

From a given set of data candidates were required to prepare the terminal bill for each (a) Bounding student;

(b) Day student.

Expected solution Grace international school

Grace international senior	
Alternative 1	
Terminal bill for boarding students	
Feeding (Le 72,000/4000)	180.00
Electricity (25% x 16,000)/4000	10.000
Water (25% x 8000) 4000	5.00
Transportation (10% x 10,000)/4000	2.50
Uniforms (24,000/2,400)	10.00
Hostel fees (18,000/4000	45.00
Maintenance (6,000/2,400)	2.50
Incidentals (12,000/2400)	5.00
Tuition (480,000/2400)	200.00
Administration (43,200/2400)	18.00
	478.00
Terminal bill for Day students	
Electricity (75% X Le 16,000)/2000	6.00
Water (75% x 8000)/2000	3.00
Transportation (90% X 10,000)/2000	4.00
Uniforms (24,000 x 2000)	10.00
Maintenance (Le 6,000/2000)	2.50
Incidentals (12,000/2400)	5.00
Tuition (480,000/2400)	200.00
Administration (le 42,200/2400)	<u>18.00</u>
	249.00

Alternative 2

Terminal bill for boarding students	
Feeding	72,000.
Electricity (25% x 16,000)	4,000
Water (25% x 8000)	2,000
Transportation (10% x 10,000)	1,000
Uniforms (24,000/2,400 x400)	4,000
Hostel fees (18,000/4000x400)	18,000
Maintenance(6,000/2,400x 400)	1,000
Incidentals (12,000/2400x400)	2,000
Tuition (480,000/2400 x 400)	80,000
Administration (43,200/2400x400)	<u>7,200.</u>
	191,200
Bill per boarder = le $191,200 = 478$	
4,000	

<u>Terminal bill for Day students</u>	
Electricity (75% X Le 16,000)	12,000
Water (75% x 8000)	6,000
Transportation (90% X 10,000)	9,000
Uniforms (24,000 x 2000 x 2400)	20,000
Maintenance (Le 6,000/2000x 2,400)	5,000
Incidentals (12,000/2400x2000)	10,000
Tuition (480,000/2400x 2000)	400,000
Administration (le 42,200/2400x2000)	36,000
	498,000

Bill per day student Le $\frac{498,000}{2,000}$ =Le 249

Candidates scored an average of 7 out of 15 this question. They couldn't get the area which involved division and multiplication at the same time. Almost 95% of the candidates who attempted this question used alternative 2.

It seems that students do not have full knowledge of the topic.

QUESTION 8

Alibi Company Limited has established the following stock levels for its business:Maximum usage550,000 unitsMinimum usage350,000 unitsRe-order quantity600,000 units

It takes between two and four months for orders to be delivered. You are required to calculate the

- (a) Re-order level;
- (b) Maximum stock level;
- (c) Minimum stock level;
- (d) Average stock level.

Topic: Materials – Stock Levels

From a given set of data candidates were required to calculate various stock levels. Suggested Solution

Alibi Company Ltd

(a) Re- order level = maximum usage x maximum stock

 $550,000 \ge 4$ = <u>2,200,000</u> units

(b) Maximum stock level = ROL + EOQ – (Minimum Usuage X Minimum Lead Time 2,200,000 + 600000 - (350,000 x2) = 2800,000 - 700,000= 2,100,000 units (c) Minimum stock level = ROL – Average usuage x Average Lead time = 2,200,000- (450,000 X3)<u>850,000</u> units

(d) Average stock level = $\underline{\text{maximum stock level} + \text{minimum stock level}}_{2}$ = $\underline{2,100,000 + 850,000}_{2}$ = $\underline{1.475,000 \text{ units}}$

Abort 99% of the candidates attempted this question and over 50% of them scored maximum points however there were some careless mistakes like not using signs in the equations, calculating answers in the calculator and losing marks for the steps.

QUESTION 9

Employees of Kayode Limited Work a 40 hour week during which each worker is expected to produce a basic of 4,000 units of product.

Employees are paid le 50 per unit produced and to motivate workers Kayode Limited has instituted the following incentive scheme:

Production (units)	Payment (le) per unit
4,001 – 5,000	60
5,001 - 6000	70
Above 6,000	80

• All employees pay 6% of basic wages to social security fund and 5% towards provident fund.

• Income tax is charged at 5% for wages up to Le 250,000 and 10% for any extra income.

- Provident fund is subject to tax
- Production for the week is as follows:

	Units produced
Kolawole	4,560
Kamara	5,250
Kwame	3,900
Kunte	6,100

You are required to prepare:

(a) Schedule of earnings for production showing the total earnings to each employee;(b) A payroll sheet for Kayade limited for the week.

Topic: Labour – Payroll

From a given set of data candidates were required to a wages schedule and payroll Suggested Solution:

Kayoed Limited

(a) Schedule of payment for production

Employee	up to 4000	4000 - 5000	5000 - 6000 a	above – 6000	total
	Le	Le	Le	Le	Le
Kolamole	200,000	33,600	-	-	233,600
Kamara	200,000	60,000	17,000	-	277,500
Kwame	195,000	-	-	-	195,000
Kunte	200,000	60,000	70,000	8,000	338,000
	= = = , = = =	,0	,	3,000	200,000

Payroll sheet for Kayode Ltd

Employee	Basic	Bonus	Gross	SSF	Taxable	Tax	Provision	Total	Net Pay
	pay		Pay		Pay		Fund	deduction	
	Le	Le	Le	Le	Le	Le	Le	Le	Le
Kolawale	200,000	33,600	233,600	12,000	221,600	11,080	10,000	33,080	200,520
Kamara	200,000	77,000	277,500	12,000	265,500	14,050	10,000	36,50	241,450
Kwame	195,000	-	195,000	11,700	183,300	9,165	9,750	30,615	164,385
Kunte	200,000	138,000	338,000	12,000	326,000	20,000	10,000	42,100	295,900
Total	795,000	249,100	1,044,100	47,700	996,400	54,395	39,750	141,845	902,255

The average marks scored was 4 out of 15, due to poor calculations and wrong interpretation of instructions calculation of piece rate and time rate must be mastered by candidates and instructions could be followed strictly they should not only depend on past questions.

GENERAL SUBJECTS

RÈSUMÈ OF THE GENERAL SUBJECTS

1. STANDARD OF THE PAPER

The reports according to the various Chief Examiners stated that the papers were free of ambiguities, and within the scope of the syllabus. The marking schemes were exhaustive and the papers compared favourably with those of previous years.

2. CANDIDATES' PERFORMANCE

Variations were noticed in the performances of the candidates. Candidate performed poorly in Christian Religious Studies 2(pg.34) and in History 2(pg.64). Candidates failed to answer the questions properly in Geography 3(pg.49) especially Mapwork. In Geography 2(pg.44) candidates demonstrated knowledge in country specific questions and those on Africa, they also adhered to the rubrics. Candidates performance for Economics 2(pg.37) was better as compared to those of previous years.

3. CANDIDATES' STRENGTHS

A good number of candidates were able to respond to all the questions in Literature 2(pg.69) and gave answers that earned them quality marks. For History 2(pg.64) above 70% of the candidates adhered to the rubrics of the examination and a few showed mastery of the subject. For Economics 2(pd.37) candidates also adhered to the rubrics and presentation of work was good. This was also the same for Geography 2(pg.44) Some candidates demonstrated knowledge and preparedness for the examination in Government 2(pg.58)

4. CANDIDATES' WEAKNESSES

It was noted in candidates inability to answer the required number of questions. Over reliance on text books adversely affected their performance in Christian Religious Studies 2(pg.34) In Geography 3(pg.49) candidates could not read and understand the questions and they seemed to have been ill prepared for map reading.

- Inability to answer the questions adequately instead of mere listing of points, drawing skills of candidates was another weakness.
- Failure to adhere to rubrics of the paper and poor spelling communication skills for Government 2 (pg.58) and History 2(pg.64), Literature 2(pg.69).

- Non availability of text books was glaring in Literature 3(pg.73).
- Poor presentation of materials/disorganized work Economics 2(pg.37).

5. SUGGESTED REMEDIES

- Survey should be done to ensure prescribed texts are readily available before they are recommended.
- Ensure trained and qualified teachers are assigned to examination classes especially in remote areas.
- Schools should encourage team teaching in some subjects.
- Teachers should be au fait with and exhaust the syllabus before the examination and make allowance for additional teaching time.
- Candidates should read and understand the questions well before attempting them and they should give detailed answers instead of merely stating or listing points.
- Proper supervision and invigilation at examination centres to avoid collusion at examination centres.
 - Candidates should be exposed to constant class work and assignments to familiarise themselves with the rubrics of the examination.
- Candidates should inculcate reading habits to improve their reading and writing skills.
 - Teachers and examiners should make use of Chief Examiners reports this will help guide them to know the demands of questions.
- Geography teachers should impress on the issue of Map reading and drawing skills especially the maps.
- Emphasis should be laid on reference materials to broaden the horizon of candidates.

CHRISTIAN RELIGIOUS STUDIES 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

This should indicate the standard of the paper and the performance of candidates in comparison with those of previous years.

Comment on any special difficulties that might have affected candidates' performance.

The standard of the paper was maintained as the previous years. Question were drawn from various topics across the syllabus about thirty percent of candidates were not able to answer four question from section A; B and C as required .the responses of some candidates to questions clearly demonstrate that they are not familiar with the topic from which the questions were set and hence their poor performance. Only a few candidates were able to score thirty marks and above out of the sixty marks allocated to essay part of the paper.

2. <u>CANDIDATES STRENGTHS</u>

Report in detail any observed good performance and suggest ways of improving the qualities.

Candidates who answered four question as required performed better than those who answered less than four. Candidates are therefore encouraged to attempt four question according to the rubrics of the paper.

Candidates who scored forty marks and above showed clearly that they were familiar with the syllabus in order to enhance their performance candidates are advised strongly to study harder and ensure that they understand the question they tackle.

Scanty essay must be avoided .equally so long introduction commentaries and unnecessary explanations should be avoided .essays must speak to the question and responses must be full of substance in order to score higher marks.

3. <u>CANDIDATES WEAKNESS</u>

Candidates failure to attempt four questions as required adversely affected their performance. Conscious effort must be made to answer fourquestions to enhance better performance.

Over reliance on text book pamphlets commentaries, notesbook instead of the revised standard version of the bible is always affecting candidates'performance. Teachers are advised to make the C R S syllabus available to all candidates and encourage them to read the bible during C R S classes in school and athome. Candidates must be conversant with the nature of questions they will be required to answer in the examination.

DETAILED COMMENT ON INDIVIDUAL QUESTIONS

QUESTION 1

This question required examinees to outline the creative activities of god from the first to the seventh day in chronological order the scheme listed all the activities each one corresponding to the particular day the activity was done. Some of the candidates who attempted this question however confused the activities and days for example, instead of stating that on the fourth day God created the sun, moon and stars they will say on that day he created the land sea and vegetation. This was how some of them lost marks though majority did it correctly.

QUESTION 2

The letter of this question was not only interested in the report itself brought by the spies to Moses but the appointment of the twelve and the terms of reference given to them. Instead of starting the answer with the appointment of the twelve spies and their task to find out whether the people who lived in the land were strong or weak few or many.

Comment on the response of candidates to individual questions.

Whether the land was fertile or not and whether the people lived in an open country or certified cities, they only focused on the negative majority report of the spies and the positive minority report of Joshua and Galeb. This was responsible for the poor performance of many candidates in this question.

QUESTION 3

Some candidates who attempted this question were consumed as to what the setter wanted. Perhaps what they have been used to is Saul's death in Israel's war against the philistines, quite oblivious of the fact the battle took place on mount Gilloa. Some even narrated Saul's disobedience to God in Israel's battle against the Amalekites . they would have earned better marks if they mentioned that Israel's army was routed by the philistines Saul's three sons were killed such and his armour bearer committed suicide the bodies of the king and his three sons were displayed on the walls of bethshan the Israelites abandoned some of their cities which were eventually occupied by the philistines'etc.

QUESTION 4

Few examinees answered this question and did poorly because they are not familiar with the social vices which almost condemned Jerusalem etc.

QUESTION 8 AND 9

Candidates still find it difficult to grasp the teachings of James and peter on faith and works and good citizenship respectively. It is apparent that some teachers negate section C of the syllabus and hence the poor performance of pupils. A good number of candidates who answered the one question from this section as required did not do well at all and there are a few who did not attempt any question from this . It is even a mockery to see some candidates answering both questions instead of one only to get the better of the two marks which is less than four.

James admonition to Christians is for them to be doers and not only hears the word of God. They should bridle their tongues, abstain from the sins of the world, visit or plans and windows in their

affliction demonstrate their faith in good works because just as the body without the spirit is dead so faith without works is dead.

Peter advised Christians to be subject to every constituted authority because it is God who appoints them to punish wrong and praise those who do right. They should not use their freedom as excuse to do evil etc. of Jesus appropriately start with their preparation of spice to anoint Jesus and their visit to the tomb after the Sabbath day. Some candidates however narrated the roles of the women during the crucifixion of Jesus. This was not what the question asked for, it is not in the scheme and hence no mark. Candidates should learn to limit themselves within the requirement of the question such as the women's visit to the tomb their doubt on the way as to who will roll the stone for them the angle that called the stone and sat on proclaim the resurrection of Jesus etc.

QUIESTION 7

Most candidates that attempted this question were not familiar with the story of peters miraculous escape from prison and only a few got it right. Once would have expected them to state that peter was arrested and kept in custody after iterated had killed James the brother of john. It was intended to be killed after the pass over feast the church prayed for him fervently and an angel visited him in prison and set him free. He visited the brethren who were praying for him in Mary's house and later escapedfrom Jerusalem etc.

ECONOMICS 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The standard of the paper was as required. The questions were syllabic in the sense that they were on topics in the syllabus. They were simple straight forward and to the point, without ambiguity. The performance of candidates compared favourably with those of perceived difficulties that might have adversely affected candidates' performance.

2. <u>CANDIDATES' STRENGTHS</u>

Few candidates performed well, scoring high marks. Some candidates went according to the directions. On the question paper. Few expressed themselves in proper English. Some proved their mathematical ability by performing well in the data response question. Some organized their work properly and numbered them correctly. Few presented diagrams and gave examples where these were specifically asked for in the question.

3. <u>CANDIDATES' WEAKNESSES</u>

PROBLEM WITH ENGLISH

This problem with English seems to be getting worse every year. Candidates cannot express themselves in proper English. Candidates are not penalized for the wrong English as such. But the English can be so bad that one cannot just get any sense out of the work. The suggested remedy here is that the speaking of English should be made compulsory in schools and the rule rigorously enforced.

PROBLEM WITH MATHEMATICS

The data response questions require calculations. Many candidates performed extremely poorly in these, some scoring zero.

The suggestion here is this. The topic tools of economic analyses in the syllabus deals with data response. Teachers should teach this topic exhaustively

DISORGANIZED WORK

Candidates presented disorganized work, writing parts of the same question on different pages, with answers to other questions in between. And where they did not number their answers properly, examiners found it difficult to know which answer was for which question.

Teachers should impress upon their pupils the importance of presenting properly organized and numbered answers.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION1

A table was given. Showing the terms of trade of a hypothetical country for a three year period. Candidates were asked to use the table to answer various questions.

(a) Calculate the terms of trade for the three year period.

The common mistake candidates made here was that they reversed the order, putting the price index of imports in the numerator. Others left out the 100.

(b) In what year(s) did the country experience

(i) Favourable, (ii) unfavourable, terms of trade

For (b) the favourable TOT was in 2014 and 2015. And the unfavourable was in 2013. Here again, candidates mixed things up, stating the favourable was in 2013.

(c) Explain the answers in (bi) and (bii)

For (c) the favourable was in 2014 and 2015 because the TOT was greater than 100 while in 2013. The TOT was less than 100candidates who got (b) wrong naturally got this also wrong.

(d) Define terms of trade.

For (a) candidates should state the formula for terms of trade, which is TOT = <u>price index of exports</u> x 100 and then use it to calculate. Price index of imports

For (d) candidates should state that TOT is the ratio at which a country's exports exchange for its imports.

Many candidates simply defined TOT as the buying and selling of goods.

The lable below shows the cost schedule of a firm. Ose a to answer the questions that follow.						
Output of	Total variable	Total cost	Average fixed	Average	Marginal cost	
goods (bags)	Cost (TVC)\$	(TC) \$	Cost (AFC)\$	variable cost	(MC)\$	
				(AVC)\$		
0	0	50	-	-	-	
5	10	60	U	W	Y	
10	15	S	V	X	Ζ	
15	30	Τ	1.7	2	3	

QUESTION 2

The table below shows the cost schedule of a firm. Use it to answer the questions that follows

(a) What is the fixed cost of the firm?

A table was given, showing the cost schedule of a firm. Candidates were asked to use the table to answer various questions.

- (a) What is the fixed cost?
- (b) To calculate the values of various letters representing total cost (TC), Average fixed cost (AFC), Average variable cost (AVC) and marginal cost (MC)>
- (c) To plot the TFC curve, using the answers from the table.

For (a) candidates should know that the fixed cost is always the TC which corresponds to zero output, where the variable cost is zero.

(b) Calculate the value of S, T, U, V, W, X, Y and Z.

On the whole candidates got this right.

For (b) to calculate the TC candidates should use the formula TC= TFC +TVC, For AFC. The formula $\underline{\text{TFC}}$, for AVC, the formula $AVC=\underline{\text{TVC}}$ and for MC, the formula $MC=\underline{\Delta\text{TC}}$. Q
Q
Q

Marks were awarded for correct substitution and for the correct answer. Candidates had mixed results, some getting the substitution correct and the answer wrong and some the substitution correct and the answer wrong and strangely the correct answer.

(c) Using your answer from the table above, plot the total fixed cost (TFC) curve on the graph sheet on page 16)

For (c) candidates were asked to plot the TFC curve on a graph sheet in the answer booklet. Some candidates plotted elsewhere in the answer booklet.

QUESTION 3

(a) What is capital?

For (a) candidates should state that capital refers to all man-made assets used in the production of goods and services some candidates gave a restricted meaning, stating that capital is money used to start a business.

(b) Explain with examples the following types of capital (i) circulating, (ii) social and (iii) fixed, capital.

For (b) (i) the emphasis should be on the fact that such capital change their form, are used up in the process of production and candidates should give examples like raw materials, fuel etc.

For (ii) the stress is on the fact that those are provided by government and with tax payers' money. E.g. electricity, roads etc.

For (iii) the emphasis is on the fact that they last for long and do not change their form e.g. machines factory buildings.

In all three cases, the questions categorically asked for examples. Nose candidates did not give.

(c) Explain three characteristics of capital.

For (c) candidates should give points like:

(i) Capital is man- made, (ii) durable (iii) subject to depreciation, (iv) has cost of production, etc.

Candidates did reasonably well in this.

QUESTION 4

(a) What is a population census?

For (a) population census is the periodic headcount of people in a particular geographical area at a particular time, usually ten years. Most candidates simply stated that the census is the counting of people.

(b) Differentiate between optimum population and over –population.

For (b) optimum population is the size of population, which when combined with available resources and technology, will yield the highest output per head, while over population is that population size which is too large in relation to available resources and technology resulting in law output per head.

Most candidates simply stated that optimum is when the people and resource are equal while over population is when the people are more than the resources.

(c) Highlight any four features of a good population census.

For (c) candidates should give points like:

- (i) It is carried out by the government or its agent and not private individuals or organizations.
- (ii) It must reveal the population of a specific territory at a particular point in time.
- (iii) I.e. should take place at the same time throughout the territory.
- (iv) It should be a personal enumeration of each person. Etc.

QUESTION 5

(a) What is employers association?

For (a) it is a group of employers to cater for the interest of their members. The phrase in the same line of business is important. Candidates left this out.

(b) Explain any two weapons wed by employers' associations in regulating the activities of trade unions.

For (b) candidates should give points like

(i) Collective bargaining, (ii) threat of lock-out, (iii) strike breakers, (IV) dismissal etc. Somehow some candidates rather gave weapons used by trade unions.

(c) Explain any four ways of improving effacing of labour.

For (c) candidates should give points like

(i) Education and training, (ii) favourable work environment, (iii) good management/ Labour relations, (iv) quality of other factors of production etc. Most candidates did not give up to the ways required.

QUESTION 6

(a) Distinguish between increase in demand and increase in quantity demanded of a commodity.

For (a) increase in demand occurs when at the same price, different (higher) quantities are bought shown by a downward movement along the same demand curve, for the increase in demand, the emphasis is on same price and right ward shift of the demand curve while for increase in quantity demanded the emphasis is on lower prices and downward movement along the same demand curve.

Candidates did not bring these out.

- (b) With the aid of appropriate diagrams, explain the effects of
 - (i) an increase in the price of beef on the demand for fish
 - (ii) an increase in the price of kerosene on the demand for kerosene stoves.

For (bi) candidates should draw the diagrams and link their explanations to these. An increase in the price of beef will result in a decrease in the quantity demanded of beef. There will be an increase in the demand for fish. Which is a substitute? This is shown as a right ward shift of the demand curve for fish.



An increase in the price of beef from P_1 to P_2 reduces quantity demanded from Q_1 to Q_2 . An increase in the demand for fish is shown by a right ward shift of the curve from D_1 , D_1 to D_2 D_2 , with price remaining constant at P_1 .

For (bii) an increase in the price of kerosene will result in a decrease in the quantity demanded of kerosene. There will be a decrease in the demand for kerosene stoves. Which is a complement? An increase in the quantity demanded of kerosene from Q_1 to Q_2 . A decrease in the demand for kerosene stove is shown by a leftward shift of the curve from D_1 , D_1 to D_2 , D_2 .

QUESTION 7

- (ai) What is money?
- Distinguish between quasi-money and commodity money. (ii)
- (c) Identify any four attributes of good medium of exchange.

For (ai) money is anything that is general acceptable in exchange for goods and services and for the settlement of debts.

Many candidates only stated that money, are assets which can serve as a store of value but are not acceptable as a medium of exchange. They are easily converted to money e.g. bills of exchange, money orders, promissory notes etc.

Commodity money is any product which is valuable in its right and can be used as money within a specific locality e.g. bends, salt, cowries' shells, etc.

For (b) candidates should give points such as (i) acceptability, (ii) homogeneity, (iii) divisibility relative scarcity etc. (iii)

Most candidates, instead of the attributes, rather identified the functions of money, probably not knowing the meaning of the word attribute.

QUESTION 8

(a) Define national income.

For (a) national income is the monetary value of final goods and services produced in a country over a given period of time.

Many candidates simply stated that national income the money earned by the people in a country.

- (b) Explain the following national income concepts
- (i) Value added, (ii) cost of living, (iii) standard of living.

For (bi) value – added is the amount by which the value of a product is increased at each stage of the production process.

Candidates did not get this.

For (ii) cost of living is the amount of money an individual spends to obtain the goods and services which will sustain him at a time e.g. food, clothing, shelter etc.

Candidates did relatively well in this.

For (iii) this refers to the level of economic welfare or well-being enjoyed by individuals living in a country at a particular time. The higher the quantity and quality of goods and services consumed, the higher the standard of living. Per capital income is used as a measure of standard of living.

Candidates only stated that this is how well people live, without giving the other details.

(c) State any three reasons why national income estimates are not a good measure for comparing standard of living among nations.

For (c) candidates should state reasons like

- (i) Differences in the general price level between countries.
- (ii) Difference in population may also means differences in national income.
- (iv) Different currencies have different internal values
- (v) Income distribution may be different between countries etc. Candidates just did not get this.

GEOGRAPHY 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

Geography 2 paper was well structured according to the various sections – Section (A) for all the candidates, general questions given to all the candidates of which one should be taken by each candidate on their overview in the subject. The other section for candidates in their home country very appropriate, since the candidates have wide experience about their country. They will express themselves well concerning the home of their origin. The last section on Africa, which all the candidates should answer. This section tested the abilities of the candidates on Africa, particularly enjoyed the questions because candidates should get to know their continent, the features that are found.

2. <u>CANDIDATES' STRENGTHS</u>

Candidates are very good in observing all the rules and regulations binding the examination. They so observe the instructions as how they should choose the questions according to the sections.

The candidates wrote their index number correctly and their code numbers so it was very easy for the examiners to enter their grades on mark sheets for grades. Their other strengths is numbering of questions was done correctly, examiners could find numbers according to questions. Suggestion, teachers should continuously practice candidates how to answer questions according to various sections. They should teach candidates to observe all rules and regulations of the examinations

3. <u>CANDIDATES' WEAKNESSES</u>

Candidates are very weak in answering questions. Majority of them resort to mere listing which is the main result for getting low marks. Some candidates just scribble answers without writing in full. Other weakness is Map Reading, to know the various features of the country/continent. Teachers of Geography 2 should endeavor to teach candidates Map reading for them to observe the various features e.g. mountain, valleys, Lakes, Dams, Latitudes, Longitudes etc.

Secondly, skills in drawing. Candidates should learn/practice how to draw Sierra Leone and Africa maps. Drawing skills in candidates was extremely poor. Teachers must have on the timetable period dedicated for skills drawing. Many marks were lost by the candidates for drawing.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(a) Not so well done – entrenched for the candidates.

(b) State three ways by which manufacturing industries contribute to the economic development of Tropical Africa.

Satisfactory – most candidates were familiar.

(c) Outline four problems facing industrial developments in Tropical Africa. Not so well done – candidates were baffled.

QUESTION 2

(a) Outline four ways in which urban, settlements differ from one another.

Not so well done – ambiguous questions, candidates did not understand the questions.

- (b) Outline three factors that have contributed to the high population density in Japan Satisfactory candidates did well.
- (c) State three problems resulting from the high population density in Japan. Satisfactory – candidates did well.

QUESTION 3

(a) Identify four ocean routes used in world trade.

Badly done – candidates did not know the ocean routes, map reading was a very big problem for the candidates.

(b) In what four ways has water transportation contributed to economic developments?

Not so well done – candidates were confused because they did not understand the transportation of water ways importance and development.

(c) Outline four ways of improving transportation on inland water ways.

Badly done – candidates were not familiar with Inland water ways.

QUESTION 4

- (a) Describe three characteristics of subsistence agriculture in Sierra Leone Badly done – mining areas in the country were not properly taught.
- (b) Outline four advantages of subsistence agriculture. Not so well done

QUESTION 7

- (a) Draw a sketch map of Africa. On the map, locate and name:
 - (i) one mountainous area with low density of human population;
 - (ii) one coastal area with high density of human population;
 - (iii) one town in 7(a)(i) above;
 - (iv) Cape Verde island.
- (b) Give five reasons for the low density of human population in the middle belt of West Africa.

Badly done – candidates were not familiar with maps.

QUESTION 8

- (a) Draw a sketch map of Africa. On the map, mark and name:
 - (i) latitudes 37° N and 35° S;
 - (ii) longitudes 17^{0} W and 51^{0} E;
 - (iii) Mt. Kilimanjaro;
 - (iv) Lake Victoria.
- (b) Outline five benefits of highlands in Africa.

Badly done – candidates were not familiar with latitudes and longitudes.

QUESTION 9

- (a) Describe two methods of irrigation agriculture in the Niger Valley.
- (b) Give two reasons for the practice of irrigation agriculture in the Niger valley.
- (c) Outline four problems associated with irrigation agriculture in the Niger valley.

Badly done - candidates were not familiar with various irrigation.

SECTION A

QUESTION 1

- (a) Highlight three characteristics of manufacturing industries in Tropical Africa
- (b) State three ways by which manufacturing industries contribute to the economic development of Tropical Africa.
- (c) Outline four problems facing industrial developments in Tropical Africa.

Candidates were confused with characteristics of manufacturing. Industries in Tropical Africa with importance – it was badly done by all the candidates.

QUESTION 2

- (a) Outline four ways in which urban, settlements differ from one another.
- (b) Outline three factors that have contributed to the high population density in Japan
- (c) State three problems resulting from the high population density in Japan.

Candidates were not familiar with urban settlements, so this question was badly done by candidates.

QUESTION 3

- (a) Identify four ocean routes used in world trade.
- (b) In what four ways has water transportation contributed to economic developments?
- (c) Outline four ways of improving transportation on inland water ways.

Ocean routes were not familiar to all the candidates, so wrong routes were written on the answer sheets, they are not familiar with Map reading.

QUESTION 4

(a) Describe three characteristics of subsistence agriculture in Sierra Leone

- (b) Outline four advantages of subsistence agriculture.
- (c) Highlight three disadvantages of subsistence agriculture.

Not well done by the candidates because Agricultural Systems are not familiar with the candidates. Agricultural System in Sierra Leone was not well taught in schools.

QUESTION 5

- (a) Draw a sketch map of Sierra Leone. On the map, locate and name one area important for the manufacturing of:
 - (i) paint;
 - (ii) garment;
 - (iii) flour
- (b) Highlight three benefits of large-scale manufacturing industries in Sierra Leone.
- (c) Outline three advantages which large-scale manufacturing industries have over small—scale manufacturing industries.

Not well done - Manufacturing Industries are not familiar to the candidates, so it was handled carelessly by the candidates, they are not familiar with map reading.

QUESTION 6

(a) Draw a sketch map of Sierra Leone. On the map, show and name one area each where the following minerals are mined.

- (i) alluvial diamond;
- (ii) platinum;
- (iii) bauxite
- (b) Describe the process of mining alluvial diamond in Sierra Leone.
- (c) Identify four problems affecting the mining industries in Sierra Leone.

Badly done – mining areas in Sierra Leone are not familiar to the candidates where various minerals are found in the country was not familiar to them.

QUESTION 7

(a) Draw a sketch map of Africa. On the map, locate and name:

- (v) one mountainous area with low density of human population;
- (vi) one coastal area with high density of human population;
- (vii) one town in 7(a)(i) above;
- (viii) Cape Verde island.
- (b) Give five reasons for the low density of human population in the middle belt of West Africa.

Badly done – candidates were not familiar with the features of Africa. Map reading was an obstacle in answering this question.

QUESTION 8

(a) Draw a sketch map of Africa. On the map, mark and name:

- (v) latitudes $37^{\circ} N$ and $35^{\circ} S$;
- (vi) longitudes 17^{0} W and 51^{0} E;
- (vii) Mt. Kilimanjaro;

(viii) Lake Victoria.

(b) Outline five benefits of highlands in Africa.

Badly done – candidates were not familiar with latitude and longitudes – map reading was difficult for the candidates.

QUESTION 9

- (a) Describe two methods of irrigation agriculture in the Niger Valley.
- (b) Give two reasons for the practice of irrigation agriculture in the Niger valley.
- (c) Outline four problems associated with irrigation agriculture in the Niger valley.

Irrigation agriculture in Africa was not familiar to the candidates.

QUESTIONS FOR ALL CANDIDATES

Three questions in all, one (1) question in this section was to be answered by all candidates, the questions were very difficult for the candidates. The framing of the questions were entrenched, especially question one (1)(a) characteristics of Manufacturing Industries in Tropical Africa. Candidates failed to understand between Characteristics and Importance, candidates wrote on the Importance instead of Characteristics. There were a lot of irrelevancies written by candidates.

Two (a) was catchy, outlining four ways in which Urban settlements differ from one another. The question was ambiguous which the candidates were confused to answer. It needed candidates to have travelled widely into different Urban settlements to observe the differences. The question did not specify the yardstick or which areas candidates should state.

The third (3)(c) was difficult, especially Improving Transportation on Inland waterways. Most of the candidates are coming from Urban areas, so they found it difficult to answer. All other questions on African were well balanced. The only problem with all the questions are that they should be straightforward and not to be entrenched or ambiguous.

GEOGRAPHY 3

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The questions as usual were well set and there were no ambiguity observed in any of the questions set. The questions covered a wide area of the syllabus, but as usual many of the candidates were unable to do any justice to questions.

The standard of the paper continued to be excellent and compared favourably with past standards. However, the candidates continue to be complacent with their work, and therefore the result was that many of them did not know what to do and as such failed to answer the questions properly.

In some centres, it was observed that many candidates did the same options – for instance questions 1, 2, 6, and 8; and almost all of them with almost identical answers. This is invariably common in most of the provincial centres. I wonder how invigilators are selected; but it is my strong conviction that emphasis be placed on the selection of invigilators. Please select responsible invigilators.

Map reading is completely neglected by teachers. I may be bold to say that teachers themselves are not familiar with map-work as is required. In some cases particularly with question one (a) in which pupils were to mark and name features on the map extract. Most schools did not attempt that question and many others avoided it completely and many of those who attempted got it wrong, although one can observe that outside help was given.

Even though it is boldly printed on the question paper that question 1 carries 25 marks, while the others carry 15 marks each, still pupil avoided that question as much as possible. I will still reiterate that it is absolutely necessary that more work be done on map-work if candidates of geography would wish to succeed in the paper as a whole.

Many of the candidates cannot read the questions well to understand what the question demanded. They seem to depend on help from somewhere; and the result is they often copy incompleted sentences, incompleted word words and so on. Some other weak nesses of pupils was that of handwriting which was very bad and in some cases un-readable. Spelling of simple word are awful. In some cases even though the words are printed on the question paper, some of them would still spell them wrongly in their answer booklets.

It is common for candidates to start a question which has sections (a), (b) and (c). The candidate would start with sub section (a) and perhaps (b) and then leaving out sub-section (c). Then, some could come up with (c) either at the end of another question, or at the back of the booklet much later, say about two or three questions later. This has made the marking process difficult and confusing.

Recommendation:

- Teachers need to do more teaching of the subject
- Teachers must be familiar with the paper, that is, they should be aufait that is they should be skilled, well-informed with map-reading.
- Emphasis be laid on reference materials.
- They should have in their libraries particularly past questions, maps and atlases etc.
- Extra teaching time be organized to complement anytime wasted during the term.
- Map reading and Map interpretation could be taught practically.
- Let students be familiar with topographical maps. A lot of practical work be done; i.e. constant practice with topographical maps.

Teachers have a significant role to play in the preparation of pupils for the examination.

5. <u>DETAILED COMMENTS ON INDIVIDUAL QUESTIONS</u>

SECTION A

QUESTION 1

From the Rubric, candidates were expected to answer question one and three others. Question one carries twenty-five marks, while the other seven questions carry 15 marks each.

On the attached topographical map extract, mark and name the following features using the letters in the brackets:

- (i) Ridge(RG)
- $(ii) \quad Col(CL)$
- (iii) Confluence (CF)
- (iv) Spur (SP)
- (v) **Isolated hill (IH)**

The first thing some of them did was to give their own key to the features already given key to. This scored them zero as their key did not correspond to what was given.

1(b) Shade an area **above 950 ft** in the north western part of the map. a few were able to shade an area correctly, but the majority were unable to do so. They therefore lost another two marks.

1(c) calculate the gradient along the line between points **A** and **B** on the map. Which should earn them another 9 marks. Of all the script marked, no candidate got it right. Some had it partly right, but none had it completely correct. This was what was required of them.

calculation of gradi	ent	
Gradient	=	vertical interval
		Horizontal equivalent
VI	=	(1100 - 850) ft = 250 ft

1 inch = 2.54cm or approximately 2.5cm 250ft x 12 x 2.54cm HE = 1.5cm ± 0.1 Scale of map = 2cm is to 1km or 1:50,000

Therefore $\frac{12.5}{2} = 6.25$ km or $12.5 \times 50,000 = 6.25,000$ cm Gradient = $\frac{250 \times 12 \times 2.54$ cm $6.25 \times 100,000$ = 1/82 or 1 in 82

1(d) describe **two** drainages characteristics on River Tain.

Many of the pupils did not understand the meaning of characteristics and were unable to come up with the appropriate description of the River Tain. As a result they lost another 4 marks.

This is what was required of them:

Description of the drainage characteristics of River Tain

- The major or longest river in the mapped area
- Has many tributaries
- Drainage pattern is dendritic
- It flows from the north-west to the centre and the eastwards
- It is in its middle course
- It flow through u-shaped valley
- Meanders are found in the north-west of the map etc.

It would seem that the pupil have never heard about dendrition drainage before. Many of them who mentioned it were writing dendrat pattern or dendrite and so on. Pupils were definitely not prepared for this.

QUESTION 2

The population distribution in the regions of country M in the year 2011 is represented in the table below. Use the data to answer the question that follow.

Region	Population
Α	100,000
В	380,000
С	160,000
D	220,000

Pupils were to distribute country M, on a scale of one dot to represent 20,000 persons.

Some of the candidates were able to answer the question correctly and they were able to score high marks. But some however did not have a clue of how to solve the calculation

and they therefore scored zero. Many others did not show the workings of how they arrived at the answer. This affected the mark scored. Many others avoided the question as it involved mathematics.

(a) Using the map on page **3** and a scale of **one** dot to represent **20,000** persons produce a dot map for country **M**.

Calculation and plotting of dots on map						
Calculation	of dots					
Region A	=	100,000/20,000 = 5 dots				
Region B	=	380,000/20,000 = 19 dots				
Region C	=	160,000/20,000 = 8 dots				
Region D	=	220,000/20,000 = 11 dots				

(b) On the dot map produced in 2(a), suggest a suitable title. Candidates were to produce a suitable title for the map.

In most cases pupils were able to say "a map showing distribution of population" and that was all. The correct answer which most of them failed to give was "a dot map showing distribution population"

(c) State two advantages of dot maps.

Was that candidates to state the advantages of dot maps. Some candidates were able to give some correct advantages of dot maps.

Advantages of dot maps

- Give good visual impression
- Easy to interpret by counting the dots
- Easy to compare the distribution of items using concentration of dots
- Best method to show absolute figures. Etc.

QUESTION 3

With the aid of annotated diagrams, explain the characteristics and mode of formation of the following features;

(a) Gorges (b) Saif duna

(b) Seif dunes

Many candidates avoided this question, and the few which attempted it, did not do well in it. On the whole it was poorly answered.

This was what was required of the candidates.

Characteristics and mode of formation of gorges

Characteristics

- Also called ravine/cayons
- Elongated
- Steep sided
- Can be dry

- Deep narrow river valley, etc

Mode of formation

- Formed mostly in the upper coursed of a river
- Formed where waterfall retreats upstream
- Formed along fault lines
- Presence of alternate bands of hard and soft rocks
- Formed were rivers cut deeply along the lines of weakness vertically
- Further vertical erosion deepen the valley
- This creates an elongated depression etc.

Characteristics and mode of formation of seif dunes

Characteristics

- Found in and regions
- They are sand deposits
- They are long and narrow rides
- Lie parallel to each other
- Lie parallel to the direction of prevailing winds
- Examples are the Great Sand Sea of Egypt and Libya in the Sahara Desert, etc.

Mode of formation

- Formed in desert areas
- Formed due to wind deposition
- Sand dunes are deposited parallel to the prevailing wind
- Winds blow to clear the corridors between the dumes of sand
- Eddies blow towards the sides of the corridors.

QUESTION 4

(a) (i) List three landforms found in limestone regions.

- Stalactite Doline
- Clint Cave/carven
- Sinkholes/swallow holes -Stalagmite
- Uvala grike
- Pillar/colum
- *Etc*

Only two features at the best were named – cave and sink hole and no more. This question was not popular and few candidates attempted it. Even those who attempted it were only able to answer b correctly.

(ii) draw a well labelled diagram to show the underground features of a limestone. Features include: stalactite, stalagmite, pillar, cave, sub-terraineam, stream and underground lake

This was poorly done, and the features were restricted to just pillar and cave. Many others could not spell the names of the features correctly.

(b) Outline three ways by which limestone is beneficial to man

- Stream could be used for domestic purposes
- Springs provide drinking water
- Limestone is used as raw materials in cement industries
- Chalk is obtained from limestone
- Tourism
- Used in iron and tin smelting
- Grass for limestone industry
- Used in the manufacture of glass
- Etc

QUESTION 5

(a) With the aid of a diagram, explain eclipse of the moon.

This was the most favourite question and the question most poorly answered. Almost every candidate who attempted it unfortunately had no idea of what the question required. In their explanation some of them would put the moon before the sun or put the earth before the sun. There were many variations of the position of the moon in relation to the sun. They made the moon larger than the sum or the earth larger than the sun.

This was what was expected of them

Lunar eclipse

Also called lunar eclipse

- The earth revolve round the sun
- The moon revolve round the earth
- When the earth comes between the sun and the moon, the earth blocks rays of the sun from reaching the moon
- The shadow of the earth is cast on the moon
- The shadow creates darkness or umbra on the moon
- This unusual darkness is called eclipse
- Etc.

(b) State three characteristics of Great Circles

- Imaginary circular lines drawn on maps or globe
- They run in all directions
- They are limitless in number
- Any line that divides the earth into two equal parts is a Great Circle
- The centre of Great Circle is also the centre of the earth
- The equator is the only latitude that is a Great Circle
- It is capable of dividing the earth into two equal halves
- Each half is called hemisphere
- Etc.
- (c) Outline three uses of Great Circles
- For locating places of the earth's surface
- In determining approximate distance between places

- Serves as the shortest distance between two points on the earth's surface
- In determining direction
- By commercial aircraft for long distance journeys
- In saving time in aviation and navigation
- By ship for navigation
- In cutting fuel cost in aviation and navigation

QUESTION 6

Contrast the characteristics of the Equatorial climate with the Tundra climate.

- Equatorial climate is located near the equator while the Tundra climate is located near the poles
- Tundra climate is located around latitude 60 90 north and south of the equator while the Equatorial climate is located around latitude 5° north and south of the equator.
- Equatorial climate has high temperatures all the year round while Tundra has low temperature all year round
- Equatorial mean temperature is as high as 27°C while Tundra temperature is as low as -29°C
- Equatorial climate has higher precipitation of 2000mm and above while the Tundra has low precipitation of 250mm and below.
- Rainfall occurs throughout the year in equatorial climate (no marked dry season) while in Tundra climate rainfall occurs only in summer.
- Equatorial climate areas are usually hot and wet (moist) while Tundra climate areas are cold and moist, snow and frost (winter)
- Equatorial climate experiences very little difference between length of day and night while Tundra experiences several weeks of continuous night in inter and several weeks of continuous days in summer.
- Rainfall occurs in Equatorial climatic areas while snow occurs in Tundra climatic areas, etc.

Question six was not generally known and as a result almost all candidates avoided it. Pupil don't want to think for themselves these days. This question was test how they would compare two contrasting climates. The few that attempted this question exhibited a lot of guess work and therefore the result was disappointing.

QUESTION 7

With appropriate diagrams, outline **three** conditions under which the following features can be formed:

- (a) River capture
- Excessive relief rainfall in favour of powerful rivers
- There must be two parallel consequent rivers
- The consequent rivers must be separated by water shed/divide
- One of the rivers must be more powerful/ie have more erosive power than the other
- The valley of the more powerful river must be deeper than the other.
- The powerful river should have steeper slope or gradient
- The powerful river must have strong head ward erosion
- Etc

- (b) Waterfall
- There must be a resistance rock
- The resistant rock must lie across/discordant to the river valley.
- The river must plunge over the resistance rock to form a river fall
- The river valley must have river flowing in it
- A fault line scarp must cut across a river valley
- A river must plunge over an edge of a plateau
- High velocity of flow
- Prence of hanging valley
- Damming of river
- Presence of a dyke across the river channel

QUESTION 8

Write a geographical account of flooding in urban areas under the following headings:

(a) **Four** causes

- Excessive rainfall
- Refuse dumping into drains
- Poor engineering/construction of drainage system
- Settlements along river channels
- Volcanic eruption
- Tsunamis
- Wind storms e.g. hurricane, tomadoes, typhoon, non-enforcement of environmental laws
- Strong tidal waves along coast
- Inadequate urban planning
- Etc

This was the most popular question of the paper and almost every candidates attempted it and scored good marks.

A few candidates were caught napping. They wanted them to write a geographical account of flooding in urban areas and not everywhere. Some pupils concentrated on writing about causes of flooding in rural areas as well. They mentioned action like deforestation, farming, mining, and such like, forgetting that these occur in rural areas.

(b) **Three** effects

- Loss of lives
- Loss of properties
- Causes soil erosion
- Interruption of social and economic activities
- Environmental degradation
- Displacement of people
- Health hazards
- Difficult in movement
- Pollution of environment
- Easy spread of water borne diseases

- (c) **Four** measures that can be used to control the flooding
- Enforcement of legislation against indiscriminate waste disposal
- Efficient urban planning
- Construction of wider culverts and drains
- Frequent clearance of drains
- Public enlightenment
- Construction of dams to create reservoir
- Strengthening old dams
- Environment education in schools
- Etc.

GOVERNMENT 2

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The paper was of the required standard and could be favourable compared to those of the previous years.

The questions were straightforward, quite explicit and without any ambiguity. The marking scheme was well detailed very specific and in conjunction with the question set. The questions set gave the candidates the opportunity to score passing marks.

The rubrics were also clearly started and marks evenly distributed. The questions were drawn from familiar and expressed topics. Some of the questions were even past questions drawn within the last five years of the WASSCE Examination.

2. <u>CANDIDATES' STRENGHTS</u>

Very good candidates performed extremely well. They demonstrated signs of understanding questions set for them as they presented answers that were pertinent to the questions they answered. They displayed a comprehensive knowledge of the subject and indicated that they were fully prepared for the examination.

Well meaning candidates were able to score all the marks allotted for questions 3, 4, 5, 8, 9 and 10. They were also able to answer all the required questions in simple and clear English. They displayed a comprehensive knowledge of the subject.

SUGGESTED REMEDIES

- (i) Candidates should be encouraged to read text books, journals, magazines and listen to international news to improve their knowledge in his subject.
- (ii) Schools and teachers teaching the subjects should complete the syllabus before the commencement of the examination.
- (iii) Teachers should indicate habit of teaching candidates preparing for the examination how to answer questions and also review past questions with them.
- (iv) Chief examiners report should be displayed to candidates preparing for the examination and to identify their strength and weakness. It will also guide them how to answer questions.
- (v) Schools should engage the services of trained and qualified teachers to properly handle the subjects. Both the teachers and the pupils should also access the teaching syllabus ranging from SSS 1 to SSS 111 in order to be aware of the task ahead of them.

3. <u>CANDIDATES' WEAKNESSES</u>

Candidates exhibited their weakness in answering questions 3 and 7. Many candidates who attempted these questions scored poor grades, and this led to their failure.

Candidate's poor command of the English language affected their expression which in turn led to them scoring low grades some of them presented irrelevant points to their answer where some manifested it in the out-of-the-context answers they presented.

Some failed to follow the rubrics of the paper and went on to answer questions set for other countries. Such candidates did not score any mark because these section were reserved for candidates from other West African countries taking the examination. The rubrics clearly stated it.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(a) Define fascism

This was a popular question but the performance was not encouraging. Only a few of the candidates who attempted this question scored passing grades.

The first part of the questions required candidates to define fascism which most of them could not give a clear definition. Fascism if defined as system of government headed by dictator and emphasizes aggressive nationalism and racism in which government has a total control over all activities in the state.

(b) Highlight four features of a fascist state.

However, some candidates were able to do justice to the second part of the question by highlighting these points.

- (i) The leadership is supreme. It makes laws and decrees, executes and adjudicates them without any internal and external control.
- (ii) Facist government adopts autocratic tendencies.
- (iii) Political participation is limited to a few elite.
- (iv) The state is superior to individuals.
- (v) The economy is highly centralized
- (vi) It is opposed to liberal democracies, socialist and communist ideals.
- (vii) It represses political opposition as only one political party is allowed to operate.
- (viii) It lack respect for international laws and conventions.

QUESTION 2

(a) Identify three types of delegated legislation.

(b) Give four reasons for the control of delegated legislation in West Africa.

This question attracted a good number of candidates and their performance was encouraging. A good number of candidates were able to state three types of delegated legislation. Such as:

- (i) Order in council
- (ii) Special procedure orders
- (iii) Provisional orders

- (iv) Ministerial Orders
- (v) By-laws
- (vi) Statutory instruments

Most of the candidates who attempted it were also able to give four reasons for the control of delegated legislation. What came from their answers indicated they were taught as they presented points like:

- (i) To maintain law and order.
- (ii) To safeguard citizens' liberties from obnoxious laws.
- (iii) To prevent misuse of public funds.
- (iv) To prevent unnecessarily duplications of laws rules and regulations.
- (v) To make officials accountable for their actions.
- (vi) To prevent bodies with delegated legislation powers from being autocratic.

QUESTION 3

(a) Define absolute Monarchy

(b) Outline four differences between a Monarchy and a Republic.

This question was the most unpopular, and most of the candidates who attempted it performed below average. They could not even define absolute monarchy which is a system whereby the government of a state is headed by king or queen who is both head of state and government.

The second part required candidates to differentiate monarchy and a republic. Most of them failed to mention the following points:

- (i) The Principle of the rule of law is adhere to in a republic while in an absolute Monarchy the principle of the rule of law does not exist.
- (ii) In a republic, the head of government can be removed wither through a vote of no confidence or impeachment while a monarch cannot be removed by a legal process.
- (iii) In a monarchy, there is absence of separation of powers while in the republic there may be separation of powers.
- (iv) In a Monarchy, Laws are made by the Monarch and his elders whereas laws are made through elected representatives in a republic.
- (v) The head of government is elected by the people in a republic while the Monarchy comes to power through hereditary right.
- (vi) The tenure of office is fixed for the leaders in a republic while the monarch rules for life.
- (vii) Members of the legislature are elected by the people in a republic while in an absolute monarchy some legislatures are appointed while others inherit their positions.

QUESTION 4

Highlight five rules played by political parties in a state.

A good number of candidates attempted this question and their general performance was above average. Some candidates scored impressive grades to the extent that they earned all the marks allotted to it.
There are however some important points which they do not mention in their answer. These are:

- (i) They engage in political mobilization of the people.
- (ii) They provide employment opportunities for their members.
- (iii) They provide alternative government.
- (iv) They help in aggregating the views and opinions of the people.
- (v) They put the government on its toes by constructive critisms.
- (vi) They serve as a training ground for future politicians.
- (vii) They help in promoting national unity by their nationwide membership.

QUESTION 5

(a) What is pressure group?

(b) Highlight four methods employed by pressure groups to achieve their objectives.

This was a popular question among the candidate who attempted this paper. They score impressive marks for both part of the question. They were able to define pressure group as an organisation of people with similar interest coming together to influence government decisions for the benefit of its members.

Most of them were able to highlight the methods pressure groups employed to achieve their objectives such as:

- (i) Propaganda
- (ii) Mass media
- (iii) Demonstration
- (iv) Petitions and Memoranda
- (v) Use of illegal means such as violence, disobedience, kidnapping etc.
- (vi) They support candidates and political parties during elections.
- (vii) They can also employ constitutional means such as litigation or resort to court.
- (viii) Strikes and boycotts.

QUESTION 6

In what five ways did the policy of association benefits the people of French West Africa.

A considerable number of candidates attempted this question. However, their performance was not encouraging. What came out clearly from their scripts is those candidates were not prepared for such questions as demonstrated by the answers they presented which earned them poor grades. Candidates were expected to have mentioned the following points such as:

- (i) It introduced economics and social returns.
- (ii) It abolished the distinction between citizens and subjects.
- (iii) It led to the formation of political parties and trade unions.
- (iv) Universal adult suffrage was granted to the people.
- (v) Repressive laws such as indignant, corve and prestation were abolished.
- (vi) The culture, language and history of the people were recognized.

(vii) The governor – General's powers and status were reduced.

(viii) It granted local autonomy to the territories by creating territorial assemblies.

QUESTION 7

Outline five reasons why the educated elites opposed indirect rule in British West Africa.

This was the most unpopular question attempted by the candidate. Only a handful of hem answered it, and most of them could not state the required points. They were expected to mention important points like:

- i. It excluded the educated elite from taking part in colonist administration.
- ii. It interfered with the institution of chieftaincy, as chiefs were recognized through gazette.
- iii. It created division between the chief and educated elite.
- iv. It made chiefs to be corrupt, as they embezzled taxes kept in the native treasuries.
- v. The reliance of the system on the chief slow down the pace of development.
- vi. The procedure for selecting legislative members was regarded by the elites as undemocratic.
- vii. It failed to prepare the people for modern representative government.
- viii. It did not ensure the training of future political leaders.

QUESTION 8

Highlight five features of the 1991 constitution of Sierra Leone.

This was a straightforward question and was attempted by many candidates who took the paper. They presented good answers and relevant point to the satisfaction of the examiner. This question required candidates to highlight the features of the 1991 constitution. Some candidates earned all the marks allotted to this question. They were prepared for it. They presented important points like:

- (i) It established as presidential system of government.
- (ii) The president is elected by universal adult suffrage
- (iii) The constitution provides for a vice president who is a running mate to the president in the election.
- (iv) Provision is made for unicameral legislature.
- (v) It provides for a multi-party system of government.
- (vi) It reduces the voting age from 21 to 18 years.
- (vii) It makes for all presidential candidates to be members of political parties.
- (viii) Parliament is empowered to approve presidential appointments.

QUESTION 9

(a) List any three founding members of the Sierra Leone People's Party (SLPP).

(b) Outline four achievement of the Sierra Leone People's Party (SLPP).

This was not a popular question for a good number of candidates who attempted this paper but generally their performance was encouraging especially for the second part of the question which demanded candidates to outline the achievement of the Sierra Leone People's Party (SLPP). However, most of the candidates found it difficult to list the names of three founding fathers of the party. They were expected to have mentioned these names:

- (i) Sir Milton Margai
- (ii) Albert Margai
- (iii) Siaka Stevens
- (iv) Kandeh Bureh
- (v) Karefa Smart
- (vi) E.N. Jones (Lamina Sankoh)
- (vii) Bi Farma Tass
- (viii) M.S. Mustapha
- (ix) A.J. Momoh
- (x) A.G. Randall

However, most of the candidates were able to mention important achievements like:

- (i) It provides a forum for the recruitment of political leaders.
- (ii) It spearheaded the agitation for constitutional reforms.
- (iii) It represented the country in various constitutional conferences.
- (iv) It provided the first prime minister of the country.
- (v) It ended the ten year civil war by negotiating peace with the rebels.
- (vi) It embarked on reconciliation, reconstruction and rehabilitation on a massive scale after the rebel war.
- (vii) It established the National Social Security (NASSIT) to cushion workers welfare after retirement.
- (viii) It united the different ethnic group in the country.

QUESTION 10

Highlight five challenges facing the African Union (AU).

This was relatively popular question and most of the candidates who attempted it were able to score grades which enable them to pass the subject. They demonstrated their abilities to answer the questions by presenting the relevant points like:

- (i) Over dependence on external sources for development.
- (ii) Over-reliance of members states on their colonial master.
- (iii) Inability to implement most of its policies.
- (iv) Inability to remember most of its policies.
- (v) Membership of other International Organisation e.g. Common Wealth.
- (vi) Fear of domination of smaller stated by larger ones.
- (vii) The use of different currencies among member states
- (viii) Lack of consensus on international issues.

HISTORY 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE:

The paper was of expected standard and compared favourably with previous years. The question and rubrics were straight forward but majority of the candidates did poorly especially in the use of the English language which is supposed to be their means of instruction.

However some very good answers were given on the whole.

It was also realized that similar answers were given by candidates who happen to write the examinations in the same centres. There tends to be an increase on candidates scored zero than in the previous years.

2. <u>CANDIDATE'S STRENGTHS</u>

In terms of strengths, very little can be reported as candidate's strength in this examination. About 70% - 80% of the candidates have demonstrated the ability to follow the rubrics of the examination.

There were also a few good performances where candidates exhibited mastery of the subject matter.

3. <u>CANDIDATES' WEAKNESS</u>

Candidates were particularly weak in their expressions. They could not adequately express themselves in English and this obviously earned them lower grades. Spelling mistakes were common especially in questions demanding one word answer like questions 3 and 7.

It must be noted that 20% - 25% of the candidates only answered two or three questions instead of four. Some only answered just one and quite a few did not answer any question at all.

Misinterpretation of questions was also a weakness on the part of the candidates and this led the candidates to give irrelevant answers.

In question 5 several candidates discussed the problems of the early settlers instead of the problem faced by the Sierra Leone Company.

90% of the candidates who attempted question 4 did not understand the question; some discussed the reasons leading to the Hut tax war instead of the reaction of the people to the British invasion into their territories.

It is suggested that teachers expose candidates to the rubrics of the examinations and also encourage students to practice in class and at home with past papers.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTION

QUESTION 1

- (a) List any three salt manufacturing communities in pre colonial Sierra Leone.
- (b) Outline any two methods of salt processing in Sierra Leone.
- (c) State any two benefits of salt in pre-colonial Sierra Leone.

This question was answered by a good number of candidates but it was not so well done. Candidates could not identify the salt producing communities correctly. When it comes to the (b) part of the question majority of the candidates discussed the processes involved in the manufacturing of salt but the answers were not fully developed nor were they given in order of sequence.

QUESTION 2

(a) Name any three Kingdoms established by the Mane on the coast of Sierra Leone.(b) Outline any four reasons for the failure of the mane to conquer the interior people.

This was a popular question and was fairly well answered by candidates. The majority were able to name the kingdoms established by the mane but they were wrongly spelt. They were also able to state the reasons for the failure of the mane to conquer the interior people but the points were not fully developed.

QUESTION 3

(a) Name any three sub- groups of the Mende?(b) Highlight any four economic activities of the mende.

This was a popular question which produced several good answers. Candidates were able to highlight the economic activities of the mende although a good number of them failed to spell the subgroups of the mende correctly.

QUESTION 4

Outline any five different ways the people of Sierra Leone reacted to the British incursion into their territories.

This was an unpopular question and it well answered by the few candidates who attempted it. Candidates should have outline the ways the people of Sierra Leones reacted to the British invasion into their territories by bravely defending themselves against the British directly; by the refusal of some rulers to sign treaties which they suspected would negatively affect their independence. Some communities took advantage of their better knowledge of the terrain; other used guerilla tactics to fight the British and some even made use of their traditional powers. Most of the candidates spent their time giving the causes and effects of the Hut Tax War.

<u>QUESTION 5</u> Highlight any five problems encountered by the Sierra Leone Company up to 1807.

This question did not required details of the problems faced by the early settlers. Candidates should have concentrated on the failure of the Sierra Leone Company and their subsequent

problems Right from its inception the company faced problems as agriculture which they hope to depend on but failed.

Armed rebellion by the nova scotians in 1800 and frequent disputes with the Koya Temne drained the company's resources and it became bankrupt.

The French attack on the colony in 1794 adversely affected the company.

QUESTION 6

Highlight any five factors which led to the rise of the Krio to prominence during the second half of the 19th century.

This was another popular question and was fairly answered by the candidates. The candidates were able to discuss the factors which led to the rise of the Krio to prominence and these included the following:

- (i) The establishment of higher institution of learning in Freetown by the church Missionary society (CMS)
- (ii) The high standard of education acquired by the Krio in Britain
- (iii) Their assumption of high position in the civil service
- (iv) Most of them were engaged in trade in the colony, protectorate and later along the West African coast.
- (v) Reluctant of some British to work in Sierra Leone.

QUESTION 7

(a) Name any three Civil Defense Forces formed during the rebel war in Sierra Leone.

(b) Outline any four reasons for the rebel war in Sierra Leone.

This question required the candidates to name any three civil defence forces formed during the rebel war and also state the reasons for the rebel war. Surprisingly candidates could not distinguish between civil defence forces and the military force. Some could not state the reasons for rebel war instead they were discussing the aftermath of the war.

This could be attributed to the non-availability of materials on the subject matter. Candidates should have listed civil Defence forces such as

- (i) Kamajor
- (ii) Tamaboro
- (iii) Gbethi
- (iv) Kapra
- (v) Donso

The reasons for the rebel war include Foday Sankoh's plan to revenge because he was imprison in 1971; widespread corruption; mismanagement of the country's resources; Intolerance to all forms of opposition by the government and frustration among the youths.

<u>QUESTION 8</u> *Outline any five factors which led to the down fall of Sir Albert Margai.*

A considerably number of the candidates attempted this question though the general performance was unsatisfactory. There were however some candidates with impressive grades. It was observed that some candidates just discussed generally about Albert Margai and not on the factors that led to his downfall.

QUESTION 9

Outline any five played by Sierra Leone in the United Nations organization (UN/UNO).

Even though this question was straight forward and specific a good number of students concentrated on the role of the United Nations rather than the role Sierra Leone has played in the United Nations.

ISLAMIC STUDIES 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The whole paper is not too difficult if only teachers follow the syllabus in teaching but the difficulty is when questions include Arabic texts as many candidates are not Arabic oriented and those Arabic terminologiessometimes disturbs candidate from answering particular question.

2. <u>CANDIDATE STRANGTHS</u>

Questions should be based on English transliteration and some Arabic terminologies should also be given their English meaning

3. <u>CANDIDATES WEAKNESS</u>

The weakness as stated above is bringing certain words from Arabic to English meanings for the easy understanding of pupils.

4. DETAILED COMMENT ON INDIVIDUAL QUESTION

Q1 was not so well done (2)
Q2 was satisfactory
Q3 over 75% of those that attempted it did extremely well
Q4 was given them problem when trying to interprete as they took it to be sheik instead of shirk
Q5 only 5% the candidates attempted it due to the failure of understanding it.

COMMENTS ON THE RESPONSE OF CANDIDATES TO INDIVIDUAL QUESTIONS.

-75% attempted question three (3) because it was straightforward

-50% did well with question one

-the rest of the questions were just manageable to almost all candidates

LITERATURE-IN-ENGLISH 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

This should indicate the standard of the paper and the performance of candidates in comparison with those of previous years.

SPECIAL DIFFICULTIES THAT MIGHT HAVE AFFECTED CANDIDATES' PERFORMANCE.

The questions set are within the ability and level of candidates who attempted the examination.

There were no ambiguous or difficult words which could have presented problems that would affect the performance of pupils on the whole key words in the questions asked included 'consider', 'examine', 'discuss' and 'comment'. These words are appropriate to help candidates respond to the questions accurately.

The only word that few candidates seemed to misconstruct is supernatural in question 8. This question on the Castle of Otranto is misinterpreted by candidates to mean 'Superstition'.

2. <u>CANDIDATES' STRENGTHS</u>

Report in daily any observed good performance and suggest ways of improving these qualities.

A number of candidates were able to appropriately respond to all the questions.

They were not only identified but also stated the relevant points according to the 'points to note' in the marking scheme. Even so, some candidates could not communicate their ideas well to earn the more marks. Candidates could express themselves better to register the points they intend to make.

Candidates must also add more details to their responses. Merely stating the points earn them not more than 2 marks.

3. CANDIDATES' WEAKNESS

Report in detail any observed weakness and suggest remedies for overcoming them.

It was evident that candidates were conversant with the texts. It was clear in their responses that they had read the texts. Some of these candidates could not use this knowledge to their advantage.

They failed to translate their knowledge into a response to the demands of the question. Candidates merely gave narration and even attempted to summarize the text.

To address this, candidates must realize that they must adhere to what each question demands. Mere knowledge of the text is inadequate to earn good marks. Candidates must answer the questions directly as no point earns zero (0) points/ marks.

Secondly, the marking scheme emphasizes details in order for candidate to earn credit mark. If the responses of candidates lack relevant details to embellish their points, then there is a limit as to how they can score.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS.

QUESTION 1

Consider the view that Maa Tsuru deserves the reader's sympathy.

This question demands that candidates consider the view that Maa Tsuru deserves the reader's sympathy. The candidate who attempted this dwell on her relationship with the two men who fathered her children. The issue of the curse' which was the highlighted point in the "Points to note" in the marking scheme was raised by a number of candidates who were able to answer the question rearambly well and scored high marks.

Other students failed to address the question. Some of them even blamed Moa Tsuru for putting herself in the predicament she finds herself. Such candidates together with those who argued that Moa Tsuru does not deserve the readers sympathy scored very little or nothing at all because the question was clear and could not be considered after with.

QUESTION 2

Comment on the character of Adade in thevnovel.

Candidates were requested to comment on the character of Adade. Many of the candidates who attempted this question correctly identified Adade and presented him as selfish, insemitive, stingy and generally unsupportive towards his family. Some however failed to points out the highlighted point in the marking scheme stating he is an educated Chauvinist. Being minor character, candidates were able to glean materials about Adade throughout the text to address the question.

QUESTION 3

Discuss the relationship between Woye and Yaremi.

In this question candidates were required to discuss the relationship between Woye and Yaremi. In a question of this nature, where the relationship was to be candidates were able to

establish the warm grandmother/ grandson relationship right from the start. They brought out mostly the highlighted point in the marking guide which stated Yaremi's care for Woye as his support and appreciation to her. Though the almost departure of Woye and Yaremi its effect on Yaremi were largely overlooked by candidates.

QUESTION 4

Comment on the title of the novel.

Candidates were expected to comment of the title of the novel 'Lonely Days'. The novel is basically the story of Yaremi so candidates were supposed to bring out the relevance of the title to her story and by extension, the other widows mentioned. Most of the candidates who responded to the Question were able to emphasize on the death of Agumobi's (her husband) death which precipitation her loneliness and creates a background for the story. Candidates went further to highlight her refusal to choose a new husband at the Cap-pilip ceremony, the departure of her three children and Waye her grandson as well as the treatment mere out to her by the people of Kufi.

QUESTION 5

Discuss the significance of Bigger's first encounter with Jan.

The significance of bigger encounter with San is to be discussed in this question. This question requires that candidates limit their response to the first encounter between the two characters. Which in the highlighted points in the marking scheme. The main focus therefore was the actual encounter till bigger eventual in advertent of Mary Dalton. Most candidates pointed at the race relations highlighted in the encounter though that point was not well developed.

Anyway Bigger reaction at the encounter was largely brought out as he felt uncomfortable at meeting, sitting and eating with whites like Jan and Mary.

QUESTION 6

Consider the role of Max in the trial of Bigger Thomas.

This question is specific and candidates are to consider the role played by Max in the trial of Bigger Thonas. The basics of this question were to, as most candidates pointed out, what occurred in the trial in the first place, were the killing of Mary Dalton.

Candidates brought out the argument put towards by Max during the trial specifically so, his warning that killing bigger quickly will not restrain after like him. They mostly appreciated the role Max played in the trial considered it unfortunately that despite his help, bigger was sentenced to death in the final judgment.

QUESTION 7

What do you find interesting about Bianca in the Novel.

A, He text was the last to be introduced into the list of recommended texts, very few candidates attempted question M 'The Castle of Otranto'.

Those who did were able to correctly identify Matilda and did bring up points as to what makes her interacting. The emphasis was more on her observant nature and her belief in the supernatural.

Candidates however failed to bring up points on her inquisitive nature and her expectations for Matilda.

By and large candidates brought up points for which they were adequately awarded credit mark.

QUESTION 8

Examine the role of the supernatural in the novel.

This question demanded that candidates examine the role of supernatural in the novel.

A number of candidates who attempted this question were able to bring out aspects of the supernatural in the novel. There included the mysterious death of Conrad the ghost and the fearer in the helmet.

Conversely, a few candidates misinterpreted the word supernatural and such candidates did not score well in their responses.

LITERATURE-IN-ENGLISH 3

1. <u>GENERAL COMMENTS</u>

Attaching the questions to answer sheets is a great beat to minimize leakage of questions. However, it did not wipe off the 'photo-copying' of answers by candidates at almost all the centres around the country. Much demand control of question papers is needed.

This effective system of question paper control somehow prevented the rampant in -andout movements of candidates at their respectively examination centres. But the control of mobile phones is needed.

2. <u>CANDIDATES' STRENGTHS</u>

Much cannot be said now about the effect on the control of these question papers, with their writing materials, but, from observation and interrogation of previous candidates, it took them by surprise. During marking exercise, it was not surprising to see answers for past/previous questions.

3. <u>CANDIDATES' WEAKNESSES</u>

Some questions on certain texts or poems were badly addressed by certain candidates, if addressed at all, with incorrect facts.

These defects raised certain salient concerns: 'Are these texts available and at the same time with reasonably affordable costs?' 'Are there dedicated qualified personnels to guide some of these candidates, especially in distant places from the cities?'

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

Questions on Drama texts were appropriate and standard for WASSCE. Nevertheless some were carefully answered in bad grammatical sentence that had incorrect facts. Some Prose texts were answered in this Section.

Candidates need a thorough explanation of text book groupings with their corresponding question papers.

For illustration, **Q1** on <u>the Blood of a stranger</u> asks for 'comment' but most candidates gave character sketches of Kindo, Wara, Malegu.

Similarly, there was neglect to address Q3, because some candidates tabulated the characteristics of Ochuole and Madam Hoha

The Non-African Drama created more problems, either due to the absence of the actual texts, which are substituted by 'pamphlets' or the laziness of candidates. For instance the biological relationships are not stated by the candidates. The misfortunes for **Q6** were over-looked by candidates. Additionally, **Q7** needed the progress of the story that brings out the title of the play, but this was absent in most candidates' answers. Despite these, the texts were popular.

The Poetry Section does not only need the availability of the poems but thorough knowledge of literary techniques. This give flaw affects literature candidates in the large towns but more gravely the distant (remote) schools. The amount for **Question 9** is on 'Tone' of sadness which was ignored.

More disappointing was the incorrect flimsy answer for Q11, 'The Birches', which some candidates considered a 'Person'.

To conclude, much has to be done in English language teaching and Literature -in-English.

<u>COMMENTS ON THE RESPONSE OF CANDIDATES TO INDIVIDUAL</u> <u>QUESTIONS</u>

Despite these flaws and pitfalls, few brilliant candidates correctly and directly addressed themselves to some questions. Some candidates – not by centres or regions in the country – ranged between 30 - 50%. Some also had various passing grades per individual questions. Many, though, did not make up for passing grades.

These were the popular questions that gained more passes and credits: Q1, 3, 6, 7, 9 and 11.

Wading through their garbage with patience, one got their messages, facts or information.

LANGUAGE SUBJECTS

RÈSUMÈ OF THE LANGUAGE SUBJECTS

1. STANDARD OF THE PAPER

The Chief Examiners of the language subjects reported that the papers were of the required standard and compared favourably with those of previous years and the marking scheme was flexible to accommodate various answers from candidates.

2. <u>CANDIDATES' PERFORMANCE</u>

The Chief Examiner for English Language 2(pg.75) mentioned that the overall performance of candidates was satisfactory. For French 3(pg.84) candidates who were masters of the French language performed exceptionally well for French 2 (pg.82) performance of candidates from Private Schools was quite impressive.

3. CANDIDATES' STRENGHTS

French 2(pg.82) candidates performance on essay question 2 and 6 were impressive especially from private school candidates. In French 3(pg.84) candidates who were exposed to French were comfortable in providing answers to questions asked. An observable strength of candidate was in the mastery of the rubrics of the informal letter, there was also a fairly good performance of candidates in comprehensive and summary English Language 2(pg.75).

4. CANDIDATES' WEAKNESSES

For English Language 2pg.75) and French 2(pg.82) - writing good or standard essays. Candidates appeared lazy and could not write the minimum required number of words, they could not organise their essays well and lacked the ability to express themselves well in English. They mixed their tenses, made a lot of spelling mistakes so they earned a lot of zeros for mechanical accuracy.

Candidates recopied the questions and wrote answers in English. They gave irrelevant information on the essay French 2(pg.82).

In French 3(pg.84) candidates could not conjugate verbs correctly, tenses and the subject and object pronouns were confused. In instance wherein they could not give the French word, the English equivalent was used French 3(Pg.84).

5. SUGGESTED REMEDIES

- Candidates should try to understand the demands of a question.
- Candidates should master the act of essay writing by constant practices.
- Candidates should be taught to express their ideas vividly in paragraphs, punctuation and grammar and minimize spelling mistakes.
- Candidates should embark on extensive exercise in reading comprehension passages.
- Candidates should refrain from copying sentences from passages as answers.
- Candidates should be drilled in answering summary questions.
- Candidates should inculcate good reading habits.
- Candidates should refrain from including irrelevant and extraneous materials in their answers inorder to avoid marking grammatical mistakes when writing their answers.
- Candidates offering French should be exposed to French outside the classroom interacting with French nationals, listening to French TV and radio stations, this will help them improve on their vocabulary.

ENGLISH LANGUAGE 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The 2018 WASSCE for school candidates English Language paper 2 maintained the usual standard expected of candidates for this examination. The number of questions set in each section was consistent with the requirements of the syllabus; the quality of the questions set in each section was appropriate for the experience and linguistic ability of candidates at Senior Secondary School level and the total time of 2 hours was sufficient for, at least, a satisfactory treatment of the whole paper.

2. <u>CANDIDATES' STRENGTHS</u>

The general performance of candidates was satisfactory. Observable strengths of candidates was in the mastery of the rubrics of the informal letter.

Majority of candidates displayed a good knowledge of the format and style of the informal letter and of story writing.

In a fairly good number of cases, comprehension and summary questions were answered well.

3. <u>CANDIDATES' WEAKNESSES</u>

SECTION A – ESSAY

Five essay topics on different writing skills were set and the candidate was to write on only one.

Writing good or standard essays seems to pose a great challenge for many candidates. Most candidates appeared lazy and they failed to treat the content of the essay adequately. Most fail to write the minimum of 450 words demanded for each essay. In some instances, the topic of the question was misunderstood or misinterpreted. Structural imbalance was common in most essays. Candidates failed to organise their essays well. Also, the inability to express their ideas lucidly and coherently coupled with incorrect format and writing style was glaring.

Furthermore, most candidates displayed a weakness in the knowledge and use of the grammar of the language. There was indiscriminate use of wrong tenses and too many errors in punctuation and spelling. The quality of their writing was affected by poor expressions which were mostly influenced by the L1. More often than not, most candidates scored below average to weak marks under the aspect of Expression and zero for Mechanical Accuracy.

SECTION B - COMPREHENSION

In this section, one comprehension passage was given and the candidates were required to read the passage carefully and answer all the questions set on it.

It was evident that most candidates failed to read the passage carefully and intelligibly enough to be able to extract the facts required as answers to the question.

Most candidates merely copied sentences from the passage as answers without answering the questions.

SECTION C – SUMMARY

One Summary passage was set and candidates were to read the passage and summarise the answers to the questions in six sentences.

Here most candidates failed to summarise the salient or main points as was required.

In all three sections, candidates' answers were marred by a lot or errors in punctuation, grammar and spellings.

SUGGESTIONS FOR IMPROVEMENT

SECTION A - ESSAY

- (a) Candidates should pay attention to understanding what a question demands and plan the contents of an essay well so that they will be able to treat it in depth.
- (b) Writing different types of essays with correct formats and suitable medium should be given much more practice.
- (c) Candidates should be taught to express their ideas vividly in coherent paragraphs and in a variety of sentence patterns and structure.
- (d) Candidates must be careful to avoid errors in spelling, punctuation and grammar.

SECTION B – COMPREHENSION

- (a) Candidates should be given intensive practice in reading comprehension passages carefully and intelligently and in answering different types of factual questions on the passage correctly.
- (b) Emphasis should be placed on answering questions based on inference or interpretation, grammatical structure of sentences and vocabulary replacement.
- (c) Candidates must be dissuaded from copying several sentences from the passage as answers.

SECTION C – SUMMARY

- (a) Candidates must be taught the art of summarising.
- (b) They should be drilled on how to answer summary questions correctly: i.e. to read the passage very carefully, analyse the question(s) intelligibly to get the salient points they should extract from the passage, write their answers is sentences as stipulated without the inclusion of irrelevant and/or extraneous material and to avoid making grammatical and expression errors when writing their answers.

On the whole, students must develop a habit of reading. Schools, starting from the primary level, must try harder to institute the culture of reading. Students must be encouraged to read widely and pay close attention to the mechanics of the English Language, proper or appropriate expressions, sentence construction and spellings.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

You are in the final year in secondary school. Write a letter to your elder brother telling him what you intend to do after secondary school education and asking for his support.

This was the most popular question and was attempted by a very large percentage of candidates. On the whole, this essay was well done. A large number of essays scored an average mark of 5 under the aspect of Content. This indicates that the topic was very much within the candidate's experience. Some candidates, however, failed to ask for the brother's support as the question demanded; only one aspect of the essay was done and even at that, some candidates did not write about something worthwhile they would do that could soli cit the brother's support.

About 40%, scored very good marks (6 or 7) for Content while some others had poor marks mainly because their essays were short, below half of the required length of 450 words.

The aspect of Organization can be rated average to good in almost all the scripts whereas the aspect of Expression was mainly weak and below average.

Most candidates scored zero under Mechanical Accuracy.

QUESTION 2

Write an article suitable for publication in your school magazine on the dangers of disobeying school rules and regulations.

Only a small percentage (10 to 15%) of candidates attempted this question. The few candidates who attempted this question manifested originality and demonstrated knowledge of the correct writing skills of articles. However, marks scored under the aspect of Content were not very good as candidates did not quite write on the dangers of disobeying school rules and regulations; rather they were good in writing about the different rules that were violated and how and why they were violated.

The aspects of Expression and Mechanical Accuracy posed their usual challenge.

QUESTION 3

As Senior Prefect of your school, write a letter to the Chairman of the Parent-Teacher Association (PTA) pointing out the need for a computer laboratory and requesting the association to build and equip one for the school.

This question was also popular among candidates. Most of them demonstrated knowledge of the correct writing style of formal letters. The aspect of Content was adequately treated and candidates gave good and convincing reasons for the need for a computer laboratory. The other part of the essay, requesting the association to build and equip a computer laboratory for the school, was also adequately dealt with. The subject matter of the essay was well within the candidates experience therefore most of the essays were good.

The aspects of Expression and Mechanical Accuracy posed their usual challenge.

QUESTION 4

You are the main speaker in a debate on the topic: "Knowledge gained from experience is more important than knowledge gained from books." Write your arguments for or against the motion.

This was the least popular question. Less than 5% of the total number of candidates attempted this question. Although some adequate knowledge of writing debates was displayed, many candidates did not demonstrate a thorough understanding of the topic and attempts on either side of the argument were below average.

The aspects of Expression and Mechanical Accuracy posed their usual challenge.

QUESTION 5

Write a story to illustrate the saying: Forewarned is forearmed.

This question was treated satisfactorily in most scripts. The narratives made for interesting reading and followed the pattern of having a beginning, a climax and a conclusion. The question seemed straightforward enough and was easily understood by the candidates.

COMPREHENSION

QUESTION 6

Read the following passage carefully and answer the questions on it.

When the headmaster announced that an oil company was organising an essay competition for secondary school students, and that I had been <u>selected</u> as one of the two representatives of my school, I never thought much of it. I was told to report at the auditorium of the largest secondary school in town to compete with others from several secondary schools around. It was a one-hour exercise and I wrote just two pages. Although I thoroughly revised my work, <u>I did</u> not think I had as much as an outside chance against those brilliant-looking students from other schools. So, I was surprised when the principal announced some months later that I had come first in the whole region and that the company had invited me for the prize in Accra. <u>Part of the prize</u> was a return ticket.

After much eager waiting, the important day came. I took a taxi to the airport, showed my ticket, <u>obtained</u> a boarding pass, and waited for the flight. It turned out that I had arrived several hours too early. Hour after expectant hour, planes landed and took off, with passengers embarking and disembarking. The hours of waiting gave me the opportunity to watch the operations at the airport. I praised the <u>ingenuity</u> of the engineers who designed and manufactured the aircraft, and admired the skill of the pilots. In fact, I started nursing the idea of abandoning my long-cherished ambition of becoming a medical doctor.

Finally, the hour came. The public address system announced that passengers for Skybus Flight 456 should commenced boarding. I walked out and joined the queue. Final check in did

not take much time, in a few minutes I found myself climbing up the steps. Just as I was about to board the plane, I looked back and felt on top of the world. Then, I entered and took my seat beside a window. The seats looked so <u>dainty</u> that I thought the whole arrangement had been made with royalty and nobility in mind. When the one hundred and twenty passengers had been seated, the hostess welcomed us on board, gave us instructions on safety measures, and told us to fasten our seat belts for take-off. Then, the journey <u>commenced</u> as the plane taxied leisurely along the runway. The huge machine burst into a great speed and then took off. I felt elevated in many ways. I looked out of the window as the houses appeared to be disappearing behind us. Soon we found ourselves above the clouds. It was all wonderful. Several decades have passed but I still remember every detail.

(a) Why was the write surprised at his winning the prize?

(b) Why do you think that the writer arrived at the airport too early?

(c) Why did the writer think about abandoning his career ambition?

(d) Quote a sentence from the passage which indicates that the writer is recalling what happened long ago.

(e) What does the writer mean by saying that he "felt on top of the world?"

(f) Part of the prize...

I. What grammatical name is given to this expression as it is used in the passage?

II. What is its function?

(g) ... I did not think I had as much as an outside chance ...

What does this expression mean?

(h) For each of the following words, find another word or phrase which means the same and which can replace it as it is used in the passage:

I. selected;

II. obtained;

III. ingenuity;

IV. dainty;

V. commenced.

Answering the comprehension questions seemed challenging for most candidates. The narration seemed straightforward and candidates demonstrated an understanding of the facts therein. However, most candidates failed to interpret some questions well.

Questions (a) and (b) were answered incorrectly in almost all the scripts.

Questions (c), (d), (e), (f) and (g) were satisfactorily done.

Question on vocabulary, (h), was also satisfactorily done.

SUMMARY

QUESTION 7

Read the following passage carefully and answer the questions on it.

A diet that is rich in vegetables is crucial to man's life. Vegetables do not only serve as food but also play a medicinal role by supporting the proper functioning of different parts of the body. Some cultures take vegetables as their staple food while others take them as supplement. Either way, vegetables provide human cells with vitamins, minerals, fibre, essential oils and phytonutrients. All these combine to make the body function well. Vegetables are either cooked or eaten raw. They can be prepared as soups, juice or salads.

While eating cooked vegetables is healthy, it is more beneficial when eaten raw. However, this is rare in many African cultures. Cooking not only destroys the essential nutrients such as vitamin C, it also kills the enzymes that help the body to digest food. Digestion is the breakdown of large molecules of food into smaller particles for effective use of the body. It should be noted that raw vegetables contain a lot of nutrients that help the body maintain its system so that a healthy body is built.

Vegetables contain low amounts of fats and calories. This makes them a perfect substitute for foods with high calorie content such as carbohydrates and proteins. Researchers recommend substituting high calorie foods such as egg with raw vegetables which are a good source of dietary fibre. They leave man feeling full of energy for long and hence reduce craving because of their fibre contents.

Eating foods that are rich in fibre is associated with a lower risk of developing heart ailments. Soluble fibres found in vegetables absorb bile acid and cholesterol which they eliminate from the body. Researchers have shown that water-soluble fibres lower the amount of low density 'bad cholesterol' in the bloodstream. This cholesterol is bad because it sticks to the walls of blood vessels and makes them narrow. The narrowness of the blood vessels creates a passage problem for the flow of blood. The result is that the blood struggles to flow thus leading to cardiovascular diseases.

Another study has shown that the cooking of vegetables does not only lower the volume of anticancer compounds in the family of vegetables but also makes less potent all other positive aspects of the vegetable to man. Thus, to lower the risk of developing cancer, eating raw vegetables is preferred.

Furthermore, it has been established that raw vegetables contain higher amounts of antioxidants such as vitamins C and E, folic acid, lycopene, alpha-carotene and beta-carotene. Vitamins C and E are known to neutralize free radicals and protect the body cells. Lycopene boosts the immune system and also lowers the risk of cardio-vascular diseases. Folic acid is

essential for the formation of blood cells and proper functioning of the brain and nervous system. Beta-carotene is found in large quantities in many bright-coloured vegetables. Betacarotene, among other functions, protects the skin from ultra-violet rays. Since this vegetable's by-product slows down the aging process, it is equally germane to state that it reduces the risk of many diseases associated with old age.

(a) In two sentences, one for each, state the disadvantages of cooking vegetables.

(b) In four sentences, one for each, state the advantages of eating raw vegetables.

Answering the summary questions was challenging for most candidates. They identified the answers but failed to summarise the main points. What most candidates gave as answers were not the main points; they were the explanations or the examples.

Also, the questions asked for (a) the disadvantages of cooking vegetables and (b) the advantages of eating raw vegetables - most candidates missed these points. Many answers started with "it". "It" here referring to "vegetables". Where "vegetables" did not start the answers, candidates wrote "cooking".

The answers for (a) should have started with "Cooking Vegetables" because that is what the question demands; (b) should have started with "Eating raw vegetables" again because that is what the question demands.

On the whole, marks scored in this section were poor.

FRENCH 2

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

Six standard questions were set to rest the candidate use of grammar and correct vocabulary and the marking scheme was tailored in a way to make candidates get good grades should they write what was expected.

The examiner performed well in marking the script and he maintained a high level of indigently and that was a credit to him for being disciplined.

Arrangement for marking were adequately made by WAEC and we commend them for that. That notwithstanding the examiners are still appealing to the officials at WAEC to improve on existing candidates.

REPORT OF SCHOOLS

This paper is considered apt for the level of candidates because all the question asked were geared towards candidates imaginative and descriptive power of narration.

The examiners were objective in marking the script and did that without any prejudice and by strictly adhering to the prescriptions of the marking scheme.

2. CANDIDATES STRANGTHS

A number of the candidate from private schools wrote impressive essays on question 2 and 6 and correct use of subject verb agreement made those scripts outstanding. A lot of the candidates from the government and government assisted school s wrote essays which were slightly above average but not as striking as the impressive ones.

Inspite of these good presentation there were some careless mistakes which the candidates made and some of them militated against them from scoring higher marks than the one they had.

3. CANDIDATES WEAKNESS

Those candidates who could write outstanding essays had a lot of errors which included.

-. Wrong spelling

- -. Wrong conjugation (using the past to express was for question 4)
- -Problem with subject and verb
- Candidate recopying the questions
- Candidates writing answers in English
- Candidatesbringing in irrelevant information in the essays (ex the days of the week and month of year)
- -. Poor expression of ideas because of weak vocabulary.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTION

QUESTION 1

"Racontez une histoire sure le titre "la recompese de l'honnetété few candidates attempted this question because it was imaginative and candidates had to come up with stories which would appeal to the examiners those who attempted it were given an average mark after deducting marks for grammaticalerrors.

QUESTION 2

Was purely descriptive as candidates were required to describe a newly constructed building in the school by the government.

Those who attempted this question scored relatively high grades as they were able to use their adjectives learnt in the descriptive process.

QUESTION 3

Was one candidates could have scored very high marks in because it demanded candidates to state reason for the failure in French at WASSCE & BECE. Sadly, most candidates did not attempt the question. Those who did were limited in expressing their thoughts as result of not having strong vocabulary.

QUESTION 4

Requested candidates to write a latter for financial assistance from uncle. One of the biggest challenges of this question was that a good number of candidates did not know French convention of writing the address and date. Thus most of them lost mark for not doing the correct thing. The content of the letter was fairly good for many who attempted the question but another flaw was the poor expression of thoughts.

QUESTION 5

For this question candidates were expected to write a letter to a sick French teacher expressing their shock at his/her illness and at the same wishing him/her speedy recovery. Apart from the fact that most of the candidate missed the French format to write address and dates, they gained ground in the use of their adjectives and a few vocabulary which they had earlier learnt while in junior secondary school or early senior secondary school (exmedicine, hospital comprime, maladie, malade etc).

QUESTION 6

Demanded a congratulatory letter to a sister who had just got an employment. In addition the candidate were to state the expectations of that sister the problem of writing the French form of the address was also seen. In addition the expression of thoughts was problematic for some of those who attempted to write out short simple essays full of fewer mistakes.

1. GERENAL COMMENT

French paper 2 was supposed to be a give-away to candidates if their level of French was up to standard. That was not so for many and that affected the performance of the candidates .

The materials given to examiners were adequate and that facilitated the smooth marking exercise.

FRENCH 3

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The listening comprehension was within the comprehension scope of candidates as the passage was one treating a contemporary issue.

The examiners were allocated to the four regions of the country (western area, north, east and south). The examination in Freetown was conducted a day prior to the departure to the other regions being seasoned teachers the examiners maintained a very high level of integrity during the conduct of the examinations and there were no reported incidents of any examinations malpractices.

WAECFreetown has always done its best in providing the necessary logistics for the conduct of the examination in the country. However examiners are appealing to make the conditions better in subsequent examination.

REPORT TO SCHOOLS

Generally the text chosen for the listening comprehension was within the candidates reach and on average a good number of the candidates scored the average mark while a few scored way above the average. The reading passages (A+B)Were equally within the understanding of candidates but a number of the candidates could not perform was in this part of the exam due to poor reading skills.

The third part which was a short exposition on a topic was well by candidates who had been exposed to French outside Sierra Leone and those who mastered the grammatical rules. Those who had not got the exposure were unable to express themselves correctly.

2. CANDIDATE STRENGTHS

As reported earlier candidates have got an exposure to French outside the classroom were comfortable in providing answers to the question asked. Those whose knowledge in French was not grounded were not able to give correct answers and some of them were asking for the question to be repeated as a way of marking the examiners feel that they knew the answers but the ways the questions were asked was not quite clear. In the end they could not provide the correct answers.

3. <u>CANDIDATE'S WEAKNESSES</u>

The major weakness of candidates is the poor use of grammar. Verbs were not conjugated in the correct tenses and the subject and object pronouns were confused.

In case where in candidates did not know the correct French word an English equivalent was used. This shows that they had weak vocabulary and that is greatly hindering the fluency of speaking French.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

The questions on both the dialogue and exposition covered a large part of context (from school to what they normally do at the weekend and their sporting preferences) those who had a wider knowledge in French were able to give correct responses while those who were struggling with the use of French gave short answers like "oui" or "non" and in other cases "je ne sais pas" as a way of avoiding saying the wrong thing.

COMMENTS ON THE RESPONSE

It was not very easy to give an assessment of the response of candidates to the individual questions. This is due to the fact that the questions were randomly selected so that candidates many not have a gist of the types of questions asked. Every candidate had his/her question and even though some questions were rephrased not all candidates were able to answers them well.

GENERAL COMMENTS

The oral exam was within the candidates ability and those who had mastery of the French language performed exceptionally well. The reverse was for those who did not master the language and few were on the average.

MATHEMATICAL SUBJECTS

RÈSUMÈ OF THE MATHEMATICS SUBJECTS

1. STANDARD OF THE PAPER

The standard of the papers compared favourably with those of previous years. Questions drawn were free of ambiguities and within the scope of the syllabus and the marking schemes allocated marks appropriately.

2. CANDIDATES' PERFORMANCE

In the case of Core Mathematics 2(pg.92) the performance of candidates was similar to those of previous years. The general performance of candidates in Further Mathematics 2 (pg.86) was not good as compared to those of previous years.

3. CANDIDATES' STRENGHTS

The following strengths were identified:-

- Solution of equations Mathematics Core 2(pg.92), Further Mathematics 2(pg.86).
- Drawing suitable diagrams and completing modules table Mathematics Core 2(pg.92) and Further Mathematics 2(pg.86).
- Coverage of topics under Mathematics Core e.g. probability vectors and mechanics Further Mathematics 2(pg.86) and Mathematics Core 2(pg.92).
- Approximate answers correct to the required level in the question Further Mathematics 2(pg.86).
- Recognising angles in the same segments Mathematics Core 2(pg.92).
- Use of trig ratios.

4. CANDIDATES' WEAKNESSES

- Use of wrong or incorrect formulae, Further Mathematics 2(pg.86) and Mathematics Core 2(pg.92).
- Inability to understand and interprete the questions correctly Further Mathematics 2(pg.86) and Mathematics Core 2(pg.92).

- Failure to draw /sketch and label mathematical diagrams correctly - Further Mathematics 2(pg.86) and Mathematics Core 2(pg.92).

5. SUGGESTED REMEDIES

- Motivation to enhance candidates performance in these subjects.
- Candidates should learn to plot graphs, draw and label diagrams correctly.
- Candidates should learn to derive mathematical formulae and be able to interprete key words and phrases which are necessary in answering questions.

FURTHER MATHERMATICS 2

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The standard of the paper was similar to that of previous examination.

The questions were clear, explicit and drawn from the different areas as specified in the syllabus. The blend of Core Mathematics and Further Mathematics in some of the questions made them interesting.

The marking scheme was also alright with the instruction and marks allocated very clear.

Only 8% of the candidates were able to score60%. The performance was similar to that of previous examinations. The following issues were observed to have affected the candidates' performance

- (i) Interpretation of words and phrases as in question 13(b).
- (ii) Lack of understanding what the question required them to do as in questions 4, 6, 7, 11, 13 etc.
- (iii) Use of incorrect formulae
- (iv) Writing answer correct to the level of accuracy required.
- (v) In correct labeling at diagrams e.g question 14.
- (vi) Drawing of poor diagrams as in question 15(a).
- (vii) Lack of coverage of the Further Mathematics syllabus.
- (viii) Lack of the understanding of some topics in Core Mathematics as in question 12.

2. <u>CANDIDATES' STRENGTHS</u>

- (i) A large number of candidates could solve equations. They need to be helped on transforming logarithmic and exponential equations as the question demands.
- (ii) An appreciable number of candidates could draw suitable diagrams. These candidates should be helped in indicating the positions of the forces. This will help them apply the moment equations correctly.
- (iii) A number of candidates could solve problems on probability. More practice needed for problems involving three probabilities.
- (iv) Coverage of the topics under pure maths is good. There is need for candidates to cover topics under probability, vectors and mechanics.
- (v) Approximate answers correct to the level required in the question. Most candidates were able to solve problems correctly but failed to write their answer at the level required. Knowledge on significant places and decimal places need to be revised by candidates.

3. <u>CANDIDATES' WEAKNESSES</u>

- (i) Use of wrong or incorrect formula. Candidates should learn and practice how to use the different formulae in the syllabus in solving problems as question 3, candidates should also learn how to derive at formulae.
- Understanding the questions. In question 4, candidates were required to state the first four terms instead most of them calculated the sums using the formulae given. In question 13(c) a number of candidates only used the probabilities of Kofi and Ato and left out that of Sulley. There is need for problems involving three probabilities be done by candidate.
- (iii) Reading and interpreting questions. Interpretation of key words and phrases is necessary for the candidates to practice. In question 12(c), most candidates failed to include zero in the class of even number words to calculate the probability of throwing on even number.
- (iv) Failure to sketch and label diagrams correctly. Instead of labeling the parallelogram as PQRM, a number of them labelled it as PQ MR (question 14). This was also done in question 15(a).

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

This was a popular question though it was easier to solve for m and n by developing a linear equation (i.e. 3m + 224), yet a number of candidates developed a pair of simultaneous equations but were unable to solve for m and n.

QUESTION 2

Solve the equations: log (x - 1) + 2log y = 2log 3;log x + log = log 6.

A large number of candidates were not able to form the equations with logarithm i.e. $(x - 1)y^2 = 9$; xy = 6 hence could not solve for x and y.

QUESTION 3Express1 in particular fractions. $x^2(2x-1)$

Expressing $\frac{1}{x^2(2x-1)}$ as $\frac{A}{x} + \frac{B}{x} + \frac{C}{x^2}$ was a problem to many candidates. Hence

they were not able to write the fraction above in partial fractions. A number of them e expressed the fraction as $\frac{A}{x^2} + \frac{B}{2x^{-1}}$ which did not yield the correct result. The rules of

partial fractions need to be learned.

QUESTION 4

The sum of the first n terms of a sequence is given by $S_n = \frac{5_n 2}{2} + \frac{5_n 2}{2}$.

Write down the first four terms of the sequence and find the nth terms of the sequence.

Most candidates calculated the sums i.e. S_1 to S_4 instead of the terms i.e. T_1 , T_2 , T_3 , T_4 which are 5, 10, 15m 20 respectively.

QUESTION 5

The table shows the relation between weekly advertisement (x) and number of items sold (y) in a shop

x	0	3	6	9	2	4	8	1	5	7
у	0	25	63	94	105	12	42	81	101	107

Calculate the Spearman's rank correlation coefficient.

A number of candidates ranked correctly but used the wrong formula to calculate Spearman's rank correlation i.e. R = 19.

QUESTION 6

The probabilities that Sani, Kato and Titi will hit a target are $\frac{3}{4}$, $\frac{2}{5}$ and $\frac{1}{4}$ respectively.

If all the three men shoot once, what is the probability that the target will be hit only once.

Instead of using the complements (i.e. $\frac{1}{4}$, $\frac{3}{5}$, $\frac{2}{3}$) of the probabilities to calculate hitting the target only once, some candidates used either the expression $\frac{3}{4} + \frac{2}{5} + \frac{1}{3}$. Note that

probability of an event lies between 0 and 1 inclusive i.e. $0 < p(\varepsilon) < 1$.

<u>QUESTION 7</u> Given that p = 2i + 3j, q = 3i - 2j and r = -I + 6j, find, |6p - 3q - 4r|.

The resultant vector was calculated by a number of candidates but did not use it find the magnitude. A number of candidates could neither multiply a scalar by a vector nor simplify the corresponding components in the three vectors. Knowledge of directed numbers plays an important role.

QUESTION 8

A body of mass 3kg moving at 15ms⁻¹ collides with another body of mass 5kg moving at 26ms⁻¹ in the same direction. After collision the 5kg body moves at 39.8ms-1 in the same direction. Find the velocity of the 3kg body after the collision.

The momentum equation was developed correctly yet some candidates were unable to use it to find the value of the velocity. Some calculated the velocity as -8m5⁻¹ but failed to state that the final velocity is in the reverse direction.

QUESTION 9

The points (2, 5), 3, 0) and (10, -13) lie on a circle. Find: (a) the coordinates of the centre of the circle; (b) the equation of the circle; (c) the radius of the circle.

The substitution of the co-ordinate's of the three points on the circle into the general formula (i.e. $x^2 + y^2 + 2yx + 2fy + C = 0$) was done correctly but most candidates were unable to develop a pair of equations with two variables from the three equations in three variables that were developed by them. Hence these candidates could not calculate the coordinates of the centre of the circle and the radius.

QUESTION 10

(a) Solve: $2^{3n} + 2 - 7 x 2^{2n} + 2 - 31 x 2^n - 8 = 0, n \in \mathbb{R}$. (b) Find $\int (x^2 + 1)^{1/2} x dx$.

For question (a), a number of candidates were unable to transform the exponential equation into a cubic equation of the form $4p^3 - 28p^2 - 31p - 8 = 0$. Some of them factorized and solve for p correctly but did not give the three values of p i.e. 8, $-\frac{1}{2}$, $-\frac{1}{2}$ but only gave two values i.e. 8, $-\frac{1}{2}$.

For question (b), some candidates integrated the expression $(x^2+1)^{\frac{1}{2}} x dx$ correctly but failed to include the constant of integration.

QUESTION 11

- (a) (i) Find the first four terms of the binomial expansion of $(1 2x)^6$ in ascending powers of x.
 - (ii) Using the expansion in (a)(i), calculate, correct to four decimal places, the value of (0.98)⁶.

Most candidates were unable to expand $(1 - 2x)^6$ up to the fourth term as required. For those who did the expansion correctly some substituted 0.02 for x instead of 0.01 in order to evaluate $(0.98)^6$.

(b) If x^2+2x-8 is a factor of the polynomial $f(x) = ax^3 - 4x^2 + 28x - 16$, find the value of a.

Some candidates factorised $x^2 + 2x - 8$ as (x - 2)(x + 4) but could not find the value of a in $F(x) = 0x^3 - 4x^2 + 28x - 16$ using either x = 2 or $x^2 - 4y$ in F(x).

QUESTION 12

Ten coins were tossed together a number of times and the distribution of the number of tails obtained is given in the table below:

Number of tails	0	1	2	3	4	5	6	7	8	9	10
Frequency	3	8	24	35	10	60	101	11	9	4	3

Calculate, correct to two decimal places, the

- (a) mean number of tails;
- (b) probability of obtaining an odd number of tails:

(c) probability of obtaining an even number of tails.

This was a popular question. Most candidates were unable to place zero as either an odd number or even number. Most of them assumed it to be odd and its frequency was not included in finding the probability of even numbers.

Inorder to calculate the probability of odd numbers, a number of candidates counted the number of odd numbers in the first row and divided this by the number of columns in the table. This was also done for the probability of even numbers giving 5 instead of 150.

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QUESTION 13

The probabilities that Ato, Sulley and Kofi will gain admission to a certain university are $\underline{4}, \underline{3}$ and $\underline{2}$ respectively. Find the probability that: 5 4 3

(a) none of them will gain admission;

The probability of at most two of them gained admission was interpreted as exactly two. At most includes 0, 1 and 2 gained admission.

(b) at most two of them will gain admission;

The probability of only Kofi and Ato will gain admission was considered as the product of the probabilities of the two i.e. $4 \ge 2$ instead of including the complement 5 3

- (c) only Kofi and Ato will gain admission.
- (i) of the probability of Sulley i.e. $\frac{2}{3} \times \frac{1}{4} \times \frac{4}{5}$

QUESTION 14

The position vector of points P. Q and r with respect to the origin are (4i - 5j), (I + 3j)and (-5i + 2j) respectively. If PORM is a parallelogram, find:

- (a) the position vector of M;
- (b) |PM|, and |PQ|; \rightarrow \rightarrow (c) the acute between PM and PQ, correct to one decimal place.

The following were observed in some candidates works: -

×

- The points P, Q, R and M were not represented correctly in the diagrams presented. A number of them presented PQMR for PQRM. Hence failed to find the position vector of M. These candidates lost almost all of the marks in the marking scheme.

- Instead of writing
$$\overrightarrow{PQ} = \overrightarrow{MR}$$
, a number of candidates used $\overrightarrow{PQ} = \overrightarrow{RM}$.

QUESTION 15

- (a) A uniform beam ST of length 3.6m and mass 30kg rests on two pivots A and B, such that SA = 0.6m and TB = 0.8m. Loads of 8kg and 10kg are attached at S and T respectively. Find, correct to two decimal places, the reactions at A and B. [Take g = 10ms⁻²]
- (b) A car starts from rest and accelerates at 8ms⁻² for 10 seconds. It then continues at the same velocity for 20 seconds. Calculate the total distance travelled.

Observations include were:-

- A number of candidates did not present suitable diagrams and were therefore not able to calculate the fractions at A and B for question 15(a).
- For question (b), Newton's equation i.e. $S = ut + \frac{1}{2} at^2$ was wrongly used in the part where the particle was travelling with uniform velocity i.e. the acceleration is zero and S = ut.
- A number of candidates used $V = 8ms^{-1}$ instead of $80ms^{-1}$ to calculate the area of the triangle in the diagram sketched by them.
MATHEMATICS CORE 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The general standard of the paper was good. The questions were drawn from the syllabus and were clear and unambiguous. The instructions were clear and precise. The marking scheme was very generous. Marks were provided for every appropriate step in the solutions of the questions. The general performance of the candidates was not as good as that of last year, even though a small number of candidates scored above 80%. There were a reasonable number scoring 0% which was not so in previous years. Teachers and schools need to increase efforts to improve on candidates performance.

2. <u>CANDIDATES' STRENGTHS</u>

- Solution of simultaneous equations.
- Reducing indices with different bases to common base.
- Completing modules tables.
- Recognizing angles in the same segment.
- Use of trig. ratios.
- Angles of elevation.
- Vector addition and multiplication.

3. <u>CANDIDATES' WEAKNESSES</u>

- Drawing and reading from graphs.
- Multiplication of matrices.
- Drawing mathematical diagrams.
- Rotational transformations.
- Formulating cumulative frequency tables with upper class boundaries.
- Calculating the 1st term and common difference given three terms with variables.
- Calculating time when amount, principal and rate are given in simple interest.
- Finding percentage profit.
- Calculating probability of events with replacement.
- Making simple construction where this helps to make solutions easier.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(a) Solve, correct to one decimal place, $\tan(\theta + 25^{\theta}) = 5.145$, where $\theta^{\theta} \le \theta \le 90^{\theta}$.

Candidates were required to solve correct to one decimal place $\tan (\theta + 25^0) = 5.145$. To solve, candidates were required to find $\tan^{-1} 5.145$ and subtract from it 25⁰. Thus: $\tan (\theta + 25^0) = 5.145$ $\therefore \theta + 25^0 = \tan -15.145$ $\theta + 25^0 = 79.0009$ $\therefore \theta = 79.0009 - 25$ = 54.0009 ≈ 54.00 to 1dp. Most candidates were able to solve correctly; only a handful of candidates were unable to do this correctly. Also a good number of candidates did not indicate the one decimal place and the units and so lost marks.

(b) In the relation $t = m \sqrt{n^2 + 4r}$ (i) make n the subject of the relation; (ii) find the positive value of n when t = 25, m = 5 and r = 4.

This question required candidates to make n the subject of the formula t =

m $\sqrt{n^2 + 4r}$. To do this, candidates were required to first square both sides to get rid of the square root sign, make n² the subject and then find square root of both sides to get n.

$$t = m\sqrt{n^{2} + 4r}$$

$$t^{2} = m^{2}\sqrt{(n^{2} + 4r)}$$

$$t^{2} = m^{2}n^{2} - m^{2} 4r$$

$$m^{2}n^{2} = t^{2} - m^{2} 4r$$

$$n^{2} = \underline{t^{2} - m^{2} 4r}$$

$$m^{2}$$

 $n = \sqrt{t^2 - m^2 4r}$

Now substitute the values of t = 25, m = 5 and r = 4 and simplify

 m^2

Thus: (ii)
$$\sqrt{t^2 - m2} \frac{4r}{m^2 25} = \sqrt{25^2 - 52} \frac{(4)(4)}{(4)}$$

 $n = \pm \sqrt{625 - 400}$
 25
 $= \pm \sqrt{225}$
 25
 $= \pm \sqrt{9}$
 $= \pm \sqrt{9}$

= 3 the positive value of n.

In this question substitution of the values of t, m ad r was a problem for many candidates. Those who substituted correctly failed to simplify correctly and so lost marks. But most candidates got the right answer to this question.

QUESTION 2

The first three terms of an Arithmetic Progression (A.P.) are (x + 1), (4x - 2) and (6x - 3) respectively. If the last term is 18, find the: (a) value of x;

Candidates were required to use the three terms of A P given to the value of x. This is done by finding the difference of the 2^{nd} and 1^{st} terms and the 3^{rd} and 2^{nd} terms and equating them to find the value of x; i.e. find the common difference and equating the same.

Thus: from the terms (x + 1), (4x - 2) and (6x - 3) we have – (4x - 2) - (x + 1) = (6x - 3) - (4x - 2) 4x - 2 - x - 1 = 6x - 3 - 4x + 2 3x - 3 = 2x - 1 3x - 2x = -1 + 3 $\therefore x = 2$

(b) sum of the terms of the progression.

: the 1st term = 3 2^{nd} term = 6 3^{rd} term = 9

From these, the common difference = 3

Now use the values of a, d and the last term to find in the number of terms. Use this n, a and d to find the sum of the terms.

Thus:
$$a + (n - 1)d = 18$$

 $3 + (n - 1)3 = 18$
 $n - 1 = \frac{18 - 3}{3}$
 $= \frac{5}{3}$
 $= 5$
∴ $-n = 5 + 1$
 $= 6$

Most candidates did not find the square root of 470.553 and so lost marks consequently.

(c) The candidates were required to calculate the volume of the conc. using the calculated values of the radius r and the height n using the formula $V = \frac{1}{3} + r^2h$

Thus: volume
$$V = \underline{1} \times \underline{22} \times (3.6667)^2 \times 21.6 + 23$$

= 6416.26946

=
$$305.5341403$$

= 305.5 cm³ to one d.p.

Most candidates lost marks for this question because they used the rounded up values of the radius, r and the height, h, instead of the calculated values of 3.6667cm and 21.6923cm. It is advisable to use the actual values instead of the rounded up values.

.. Sn =
$$\underline{n} (a + 18)$$
 or Sn = $\underline{n} (2n + (n - 1)d)$
= $\underline{6} (3 + 18)$ or = $\underline{6} (3 + 2 + (0 - 1) 3)$
= 3×21 = $3 (6 + 15)$
= 63 = 3×21
= 63

Most candidates failed to recognise that the common base be found from the difference between the 2^{nd} and 1^{st} terms and also from that of the 3^{rd} and 2^{nd} terms. This failure led them astray and so could not solve this problem correctly. Most candidates could not find x and n, and so lost marks for the whole question. A few however got the correct values for x and n but failed to substitute correctly for the sum of the terms.

QUESTION 3

The angle of a sector of a circle with radius 22cm is 60° . If the sector is folded such that the straight edges coincide, forming a cone, calculate, correct to one decimal place, the:

- (a) radius;
- (b) height;
- (c) volume; of the cone. [Take $n = \frac{22}{7}$]

This question required candidate to find the radius when a safer with central angle 60^{0} is folded to form a curve. This could be done by considering the fact that length of the ace of the sector equals the circumference of the base of the cone, therefore these are to be equated to find the radius of the cones.

Thus: $2n R \ge 0 = 2nr$ where R = 22, and $0 = 60^{\circ}$ $r = \frac{60}{360} \ge 22$ $\frac{1}{360} \ge 1 \ge 22$ = 3.6667= 3.7 cm to 1 dp For this question, majority of the candidates could not realize that the sector when folded into a curve had the length of the sector forming the base of the curve. This failure led them astray and lost marks. However a few candidates made the connection and got the answer right. A few were not able to give the answer to one decimal place and lost marks.

Here candidates were to use Pythagoras theorem then find the height of the case using 22cm and 3.6667cm.

Thus: $L2 = 22 - (3.6667)^2$ = 470.5553 $\therefore L = \sqrt{470.5553}$ = 21.6923 =21.7cm to one dp.

QUESTION 4

(a) In how many years will GHc312.50 invested at 4% per annum simple interest amount to GHc500.00^{*}

This question required candidates to find the number of years using the amount of GH&500 when GH&312.50 was invested at 4% simple interest. This could be done by using the formula

 $I = \underline{PTR}$ when P = triangle, T = time and R = rate % 100

But the interest is amount mines principal. Thus: $I = A - P = 500 - 312 \cdot 50 = GH189.50$

 $\therefore 187.50 = 312.50 \times 4 \times T$

100

$$T = \frac{187.50 \times 100}{312.50 \times 4}$$
$$= \frac{18750}{1250}$$
$$= 15 \text{ years}$$

Almost all the candidates used the amount GH & 500 as interest to find the time T. This was wrong. The candidates did not know that the interest was amount minus the principal. This ignorance cost them valuable marks. However a reasonable number of candidates saw this fact and got the correct answer for the question.



In the diagram, PQRS is a cyclic quadrilateral. If |SR| = |RQ|, $\angle SRP = 65^{\circ}$ and $\angle RPQ = 48^{\circ}$, find $\angle PRQ$.

Candidates were required to use the concepts of angles in the same segment and the base angles of an isosceles triangle and the angles same of a triangle to solve his problem.

Thus: $\angle RSQ = \angle RPQ = 48^{\circ}$ also $\angle SOR = \angle RSQ = 48^{\circ}$ base $\therefore 48^{\circ} + 4^{8\circ} + 65^{\circ} + PRQ = 48^{\circ}$ $161^{\circ} + PRQ = 180$ $\therefore PRQ = 180 - 16^{\circ}$ $= 19^{\circ}$

Most candidates used the required concepts correctly and got the answer correct. However, a good number of candidates were not able to see the angles in the same segment. Also some of them could not identify the base angles and so they lost good marks.

QUESTION 5

(a) The probabilities that James and Juliet will pass an examination are <u>3</u> and <u>3</u> respectively. Find the probability that both will fail the examination. 4 5

Given the probabilities of James and Juliet passing as $\underline{3}$ and $\underline{3}$ respectively, candidates were required to find the probability of both failing. 4 5

This should be done by finding the probability of James failing and Juliet failing and multiply the two to find the probability of both failing.

Thus:- P (James fail) = $1 - \frac{3}{4} = \frac{1}{4}$ P (Juliet fail) = $1 - \frac{3}{5} = \frac{2}{5}$ \therefore P (James & Juliet fail) = $1 \ge \frac{1}{5} \ge \frac{1}{5} \ge \frac{1}{5}$ or 0.1 4 4 20 10

The difficulty here for most candidates was finding the probabilities of failing for James and Juliet. For most candidates this proved difficult and so they lost marks. However, a good number of candidates succeeded in getting the correct answer. Some other candidates got the correct probabilities of $\frac{1}{4}$ and $\frac{2}{5}$ but added the two instead of multiplying. This led to loss of marks too.

(b)

Balls	Green	Blue
New	8	2
Old	4	6

The table shows the distribution of balls in a bag. If 2 balls are selected at random with replacement, find the probability of selecting either 2 new green balls or 2 old blue balls.

Candidates were required to deduce from the table that (i) number of ball in the bag = 20, the number of new green balls is 8 and the number of old blue balls is 6.

Use these faults to calculate the probability of selecting 2 new green balls or two old blue balls with replacement.

This means that the 1st new green and the 2nd new green balls probabilities are multiplied; this product is added to the product of the 2 old blue balls. Simplify this sum of products to find the required probability.

Thus: P(new green) =
$$\frac{8}{20} = \frac{2}{5}$$

P(old blue) = $\frac{6}{20} = \frac{3}{10}$
 \therefore P(2 new green or 2 old blue) = $2 \times 2(3 \times 3)$ ()
 $= \frac{4}{25} + \frac{9}{100}$
 $= \frac{16+9}{100}$
 $= \frac{25}{100}$
 $= \frac{14}{25} \text{ or } 0.25$

The problem most candidates encountered was finding the total number of both and the probabilities of the new green and the old blue balls.

Since these probabilities were wrongly found, the final probability was also wrong. Most candidates used a total of 10 for both new and old. Also most candidates did not know that or to add the probabilities; and so marks were lost as a result.

$$\frac{\text{QUESTION 6}}{(a) \text{ If } 9^x x \ 3^{2y}} = \underline{1}, \text{ and} \\ 729 \\ 2-x x \ 4-y = \underline{1}, \text{ find the value of } x \text{ and } y.$$

The question required candidates to reduce the indices in the two equation to common bases and the indices to form simultaneous equations and solve them to find the values of x and y.

Thus:
$$9^{x} x 3^{2y} = \frac{1}{729}$$
, and
 $2^{x} x 4^{y} = \frac{1}{8}$
 $9^{x} x 3^{2y} = \frac{1}{729} \xrightarrow{3} 3^{2x} x 3^{2y} = 3^{-6} \xrightarrow{2} 2x + 2y = 6.....(1)$
 $2^{-x} x 4^{-y} = \underbrace{1}_{8} \xrightarrow{2} 2^{-x} x 2^{-2y} = 2^{-3} \xrightarrow{-} x - 2y = -3....(11)$
was solve (1) and (11) simultaneously
i.e. $2x + 2y = -6$
 $\underbrace{-x - 2y = -3}_{add x} = -9$
substitute for x in equation – (1) to find y.
Thus: $2(-9) + 2y = -6$
 $2y = -6 + 18$
 $= 12$
 $\therefore u = \underbrace{12}_{=6}$

Majority of the candidates were able to form the simultaneous equations from the indices equations. They were also able to solve the simultaneous equations correctly. However, a sizeable number.

(b) Two commodities X and Y cost D70 and D80 per kg respectively. If 34.5kg of X is mixed with 26kg of Y and the mixture is sold at D85 per kg, calculate the percentage profit.

In order to calculate the percentage profit, candidates were required to find the original of the two commodities X and Y, when each costs D70 and D80 respectively. Candidates were also required to find the cost of the mixture when it was sold for D85. From the two costs, find the profit; divide this profit by the original cost and multiply 100 to get the percentage profit.

```
Thus cost of X = 70 x 34.5 = D2415.00

cost Y = 26 x 80 = D2080

Total cost of X + Y = 2415.00 + 2080 = D4495.00

Total sales of mixture = 85 x (34.5 + 26) = 85 x 60.5 = D5.42.50

∴profit = 5142.50 = -4495.00 = D647.50

∴profit% = <u>647.50</u>x 100

4495

= <u>64750</u>

= 14.4049
```

The difficulty here was finding the cost of X and Y separately at D70 and D80 respectively and the cost of the continued mixture of 34.5 of X and 26 of Y at the cost of 085.

Most candidates got confused at this stage and lost considerable marks. The percentage profit then became an easy work over. However marks were lost for omitting the units of the cost of the commodities X and Y.

QUESTION 7

(a) Copy and complete the following table for the relation: $y = 2(x+2)^2 - 3$ for $-5 \le x \le 2$.

x	-5	-4	-3	-2	-1	0	1	2
у			-1			5		

Candidates were required to complete the table and draw the graph of $Y = 2(x+2)^2 - 3$ for $5 \le x \le 2$; use the graph to the solution of (i) 2 (x + 2)² = 3 and (ii) 2 (x + 2)² = 5.

To complete the table substitute the values of x = -5, -4, -1, 1 and 2 into $2(x + 2)^2 - 3$ to find the corresponding values of y.

Thus: when $x = -5$, $Y = 2(-5 + 2)^2 - 3$						when	X = -4	$\mathbf{Y} = 1$	2(-4+2)	$^{2}-3$
			=2(-3)	$(3)^2 - 3$				= 2	$2(-2)^2 - 3$	3
			= 2 x	9 – 3				=	$2 \ge 4 - 3$	
			= 18 -	- 3				=	8 – 3	
			= 15					=	5 and so	on
			-	-				-		-
	Х	-5	-4	-3	-2	-1	0	1	2	
	У	(15)	5) -1	-3	(-1)	5	15)29)	1

(b) Using scales of 2cm to 1 unit on the x-axis and 2cm to 5 units on the y-axis, draw the graph of the relation $y = 2(x+2)^2 - 3$ for $-5 \le x \le 2$.

Draw the graph of $Y = 2(x + 2)^2 - 3$ using a scale of 2cm to 1 unit on the x - axis and 2cm to 5 units on the y - axis. The axes must be labelled.

(c) Use the graph to find the solution of:

(i) $2(x+2)^2 = 3;$

From the graph solution of 2(x + 2)2 = 3 is the points where the curve cuts the x - axis; these are $x = 3.2 \pm (0.1)$ or $-8 \pm (0.1)$.

- (*ii*) $2(x+2)^2 = 5$.
- $2(x+2)^2 = 5$ $2(x+2)^2 3 = 2$. But $2(x+2)^2 3 = y$. Therefore draw the graph of y = 2 and the solution of $2(x+2)^2 = 5$ is x = -3.6 + (0.1) or 0.4 + (0.1).

(d) For what value of x, from the graph, is y increasing in the interval?

From the graph, the values for which y is increasing is $-2 < x \le 2$.

For this question most candidates did not complete the table correctly. Some worked out the values of y but did not put them into the table. Since the question said copy and complete, if candidates failed to complete the table, they lost marks. Most who completed the table did not draw the graph. No graph therefore increased marks for part (c)(i), (c)(ii) and (d) were automatically lost. On the other hand a few candidates had wrong values on the table but plotted them correctly on the graph, they therefore were awarded the marks for plotting even though the values were wrong.

QUESTION 8





In the diagram. MN // ST. \angle MNR = 230⁰ and \angle TSR = 76⁰. Find the value of \angle NRS.

In the diagram, candidates were required to find the value of \angle NRS. This could be done by making a little construction and use the concepts of corresponding angles, angle of a straight line and the angle sum of a triangle.

Thus: From the diagram produce MN to 0 to

make 0 m 11 ST. MO is straight line

 $\therefore \text{ RNO} = 230^{\circ} - 180^{\circ} = 50^{\circ}$ also / NOR = 76 corresponding angles OM 11 ST $\therefore 50^{\circ} + 76^{\circ} + \angle \text{NRS} = 180^{\circ} \text{sym of } \Delta$ 126- $\angle \text{NRS} = 180$ $\therefore \angle \text{NRS} = 180 - 126$ $= 54^{\circ}$

Most candidates could not make the required construction and so lost marks. Those few candidates who constructed correctly also correctly used the required concepts and got full marks.

(b)(i) Copy and complete the tables for the addition + and multiplication x in modulo 5.

Ð	1	2	3	4
1	2	3	4	0
2	3			
3	4			2
4	0			

х	1	2	3	4
1	1	2	3	4
2	2			
3				2
4				1

(ii) Use the tables to find

 (α) 4 (α) 2 (+) 3 (α) 4;

(β) m such that m x m = m + m;

(y) n such that 3 \bigoplus n = 2 \bigotimes n

- (i) This question required candidates to copy and complete the tables for the addition \bigcirc and multiplication \bigcirc in modules 5.
- (ii) Use the tables to find (α) 4 (\propto) 2 (+) 3 (\propto) 4; (β) m such that m(\propto) m = m(+) m; (y) n such that 3 (+) n = 2 (\propto) n

Thus:

(i)

\sim				
\bigcirc	1	2	3	4
1	2	3	4	0
2	3	(4)	0	1
3	4	\square	1)	\bigcirc
4	0	\bigcirc	2	3

X)	1	2	3	4
1	1	2	3	4
2	2	9	Θ	3
3	9	Э Э	\mathcal{A}	2
4	\mathbf{a}	9	2	1

(ii)
$$(\alpha) 4 \propto 2 + 3 \propto 4 = 3 + \bigcirc = 0$$

 $(\beta) m \propto m = m + m = 2 \propto 2 = 2 + 2 = 4 = 4 \therefore m = 2$
103

$$(y)$$
 3 $(+)$ n = 2 (x) n \Rightarrow 3 + 3 = 2 x 3 \Rightarrow 1 = 1 \therefore n = 3

Most candidates were able to complete the tables in modules 5 correctly. Only a handful were not able to do it correctly. The use of the tables to answer the other questions was also done correctly, and so marks were gained.

QUESTION 9

(a) If $16n = \sqrt{2^2}$, find the value of n.

This question required candidates to reduce the equations to indices with a common base, equate the indices and solve for n.

Thus:
$$16 n = 2^{2}$$

 $2^{Hn} = 2^{1}$
 $4n = 1$
 $n = \frac{1}{4}$

Most candidates found the correct base and indices. The value of n was therefore easily found. However a few candidates did not know how to express 16^{n} as 2^{Hn} , and they failed to find the correct value of n.

- (b) The perimeter of a square and a rectangle is the same. The width of the rectangle is 6cm and its area is $16cm^2$ less than the area of the square. Find the area of the square [Take $\pi = 22$] 7
- (c) Candidates for this question were required to know the concepts of perimeter and areas of squaresand rectangles. They were required to equate the perimeters and areas of the square and rectangle. From these, candidates were to substitute and formulate and solve the resulting quadratic equation to find the length of the square, hence calculate the area of the square.

Thus: Perimeter of square = perimeter of rectangle Let the length of the square be x and the length of the rectangle be ℓ and width be 6cm.

∴4x = 2(ℓ + 6) (i) x2 = 6ℓ + 16 (ii) From equation (i) $ℓ = \frac{4x - 12}{2} = 2x - 6$ Substitute the value of ℓin equation (ii) Thus: $x^2 = 6(2x - 6) + 16$ $x^2 = 12x - 36 + 16$ $x^2 - 12x + 20 = 0$ (x - 2) (x - 10) = 0 ∴x = 2 or 10 ∴The area of the square = $10^2 = 100$ cm. Many candidates who attempted this question failed to formulate the equation for the perimeters and the areas of the square and the rectangle. The failure led them astray and so cost them good marks. However, a good number of candidates got the equations but did not substitute correctly to get the quadratic equation.

Others who got the equation could not solve it correctly. Others still failed to find the area of the square, and so marks were lost as a result.

QUESTION 10

The table shows the distribution of the marks scored by 500 candidates in an examination.

Marks	0-9	10-19	20-29	30-39	40 - 49	50 - 59	60 - 69	70-79	80-89	90-99
Frequency										

(a) Find the value of y.

To find the value of y, candidates were required to add all the frequencies in the table and equate to 500.

Thus: 0 + 48 + 40 + 92 + y + 60 + 90 + 50 + 30 + 15 + 5 = 500420 + y = 500y = 500 - 420= 80

This question found many candidates getting the correct value for y. Many other candidates did not get the value of y correctly, and so lost marks.

(b) Construct a cumulative frequency table and use it to draw a cumulative frequency curve.

The Candidates having found y were required to construct a cumulative frequency table showing upper classes boundaries frequency and the cumulative frequency, and use it to draw the cumulative frequency curve.

Upper class Boundary	Frequency	Cumulative Frequency
9.5	10	10
19.5	28	28
29.5	40	78
39.5	92	170
49.5	140	310
59.5	90	400
69.5	50	450
79.5	30	480
89.5	15	495
99.5	5	500

Now use this table to draw the cumulative frequency curve.

For this question, most candidates did not draw the cumulative frequency curve. Many who did not find the value of y missing some cumulative frequencies. Those who got the table correct did not draw the graph and so lost considerable marks.

(c) Use the curve to estimate the probability of selecting a candidate who scored not more than 45%.

From the graph, candidates were required to read and find how many students scored not more than 45%. This could be done by losing along the horizontal axis which showed marks and draw a line to meet the end then draw a horizontal to meet the cumulative frequency axis, i.e. the vertical axis.

Thus: From the graph, the number of students were 245 or 250 . The P(selecting a candidate who scored not more than 45%)

 $= \underline{245} \text{ or } \underline{250} = 0.49 \text{ or } 0.5$ 500 500

As most candidates did not draw the curve, the required probability was not calculated, ensuring loss of marks. The few candidates who attempted to draw the curve did not read from it. They too lost marks.

QUESTION 11

The angle of elevation of the top, X, of a vertical pole from a point, W, on the same horizontal ground as the foot, Z, of the pole is 60° . If W is 15km from X and 12km from a point Y on the pole,

(a) illustrate this information with a diagram;

Candidates were required to know what an angle of elevation was and use this font to draw the required diagram, whose angle of elevation was given as 60°

Thus: The required diagram is



A very good number of candidates draw this diagram correctly. However, a good number of candidates did not know how to draw diagram, and so they lost the marks allocated for the diagram.

- (b) calculate, correct to two decimal places, the:
 - (i) angle of elevation of Y from W;

(ii) the length XY.

Candidates were required to calculate, correct to two decimal places, the

- (i) angle of elevation of Y from W;
- (ii) the length XY.
- (i) Use cosine ratio to find the length WZ. Use WZ to find the angle θ , the angle of elevation of y from w. Thus: $\cos 60^\circ = WZ$ 15 $(WZ) = 15 \cos 60$ = 7 : 5 1 cm $\cos \theta = \frac{7.5}{2} = 0.625$ 12 $\therefore \theta = \cos^{-1} 0.625$ = 51.320(ii) Use sine ratio to find |XZ| and |YZ|, subtract |YZ| from |XZ| to get |XY|. Thus: $\sin 600 = XZ$ 15 $\therefore XZ = 15 \sin 600$ $= 15 \times 0.8660$ = 12.99km also sin 51.32 = $\underline{\underline{YZ}}$ YZ= 12 sin 51 32 $= 12 \times 0.7806$ = 9.3678km $\therefore XY \neq XZ + YZ = |$ = 12.99 - 9.3678= 3.6222= 3.62km to 2dr Solving this problem depends on the correct diagram showing the angles of elevation, the

Solving this problem depends on the correct diagram showing the angles of elevation, the relative position of W, X, Y and Z and the length WX, 15km and WY, 12km. Those who drew the diagram correctly got good marks using the cosine and sine trig. ratios. A handful of them used Pythagoras theorem to find |YZ| and got the answer correct.

Only a sizeable number failed to draw the correct diagram and lost marks as a result.

$$\underbrace{\text{QUESTION}}_{(a) \ If \ a = \begin{pmatrix} 2 \\ 3 \end{pmatrix}}, \quad b = 5 \\ -2 \end{pmatrix} \xrightarrow{and \ c = -4} find \ scalars \ p \ and \ q \ such \ that \ pa + qb = c.$$

Candidates were required to substitute the scalars pad Q correctly into the vectors a and b, add the resulting vectors and equate to vert C. Formulate simultaneous equations in r and q and solve for p and q.

Thus:
$$p\begin{pmatrix} 2\\ 3 \end{pmatrix} + q \begin{pmatrix} 5\\ -2 \end{pmatrix} = \begin{pmatrix} -4\\ 13 \end{pmatrix}$$

 $\begin{pmatrix} 2p\\ 3p \end{pmatrix} + q \begin{pmatrix} 5p \\ -2q \end{pmatrix} - \begin{pmatrix} 4\\ 13 \end{pmatrix}$
adding, we have $2p + 5q = -4 \times 3(1)$
 $3p + -2q = 13 \times 2(11)$
 $6p + 15q = -12 \dots (3)$
 $6p - 4q = 26 \dots (4)$
Subtract (3) from (4)
 $- 19q = 38$
 $\therefore q = \underline{38}$
 -19

= -2

Subtract for q in equation (1) 2p + 5(-2) = -4 2p - 10 = -4 2p = 6 $\therefore p = 3$

Many candidates who attempted this question got it right. They were able to substitute the scalars p and q correctly and found and solved the simultaneous equations and the answers for p and q correctly. However, a small number of candidates could not get the correct simultaneous equation right and so lost marks.

- (b) (i) Using a scale of 2cm to 2 units on both axes, draw on a graph paper two perpendicular axes 0x and 0y, for $5 \le x \le 5$, $-5 \le y \le 5$, respectively.
 - (ii) Draw, on the graph paper, indicating clearly the vertices and their coordinates,
 - (a) the quadrilateral WXYZ with vertices W(2,3), X(4, -1), Y(-3, -4) and Z(-3, 2).
 - (b) the image $W X^{\dagger} Y Z^{\dagger}$ of the quadrilateral WXYZ under an anticlockwise rotation of 90° about the origin where $W \rightarrow W, X \rightarrow X, Y \rightarrow Y$ and $Z \rightarrow Z$.

This question required candidates to draw on a graph paper two perpendicular axes OX and OY, for $-5 \le x \le 5$, $-5 \le y \le 5$ using a scale of 2cm to 2 units on both axes and label them correctly. There often, they were to draw on the same graph paper, indicating clearly the vertices and their coordinates

 \rightarrow (i) the quadrilateral WXYZ with vertices w(2, 3), x (4, -1), y(-1, -4) and Z(-3, 2), and

(ii) the image W¹, X¹, Y¹, Z¹ of the quadrilateral WXYZ under an articulate wise rotation of 90⁰ about the origin where $W \rightarrow W^1$, $X \rightarrow X^1$, $Y \rightarrow Y^1$, and $Z \rightarrow Z^+$.

Thus: (i) Draw WXYZ on the graph paper.

(ii) For anticlockwise rotation of 90⁰ about the origin,

$$\begin{cases} x \\ y \end{cases} \xrightarrow{\leftarrow} \begin{pmatrix} -4 \\ x \end{pmatrix} \text{ Therefore, the coordinator} \\ W(2,3) \xrightarrow{\rightarrow} W^1(-3,2) \xrightarrow{\rightarrow} X(4_1,-1) \xrightarrow{\rightarrow} X^1(1,4), \ Y(-3,-4) \xrightarrow{\rightarrow} Y^1(4,3) \text{ and } Z(-3,2) \xrightarrow{\rightarrow} Z(-2,3). \end{cases}$$

For this question majority of the candidates were not able to draw the perpendicular axes OX and OY and label them correctly. They were in turn not able to draw and label the quadrilateral WXYZ. They were further not able to find the coordinates under an anticlockwise of 90^o about the origin. They therefore lost considerable marks as a result. However a few candidates attempted to draw the quadrilateral WXYZ but failed to label the vertices and their coordinates correctly, and so they too lost marks for not labeling the vertices and their coordinates.

QUESTION 13

Given that
$$P = \begin{pmatrix} y & 8 \\ 3 & 2 \end{pmatrix}$$
, $Q = \begin{pmatrix} -3 & -5 \\ -4 & x \end{pmatrix}$ and $R = \begin{pmatrix} -59 & -93 \\ Z & -27 \end{pmatrix}$ and $PQ = R$, find the value of x, y and z.

Candidates were required by this question to find the values of x, y and z in the matrices $P\begin{pmatrix} y & 8 \\ 3 & 2 \end{pmatrix}$, $Q = \begin{pmatrix} -3 & -5 \\ -4 & x \end{pmatrix}$, $R = \begin{pmatrix} -59 & -93 \\ z & -27 \end{pmatrix}$ where PQ = R. The candidates were expected to expand and find PQ and equate to R. They were to formulate equations involving x, y and z and solve these linear equations to find the values of x, y and z.

Thus:
$$P = \begin{pmatrix} y & 8 \\ 3 & 2 \end{pmatrix}$$
, $Q = \begin{pmatrix} -3 & -5 \\ -4 & x \end{pmatrix}$ and $R = \begin{pmatrix} -59 & -93 \\ Z & -27 \end{pmatrix}$
 $PQ = \begin{pmatrix} y & 8 \\ 3 & 2 \end{pmatrix} x \begin{pmatrix} -3 & -5 \\ -4 & x \end{pmatrix} = \begin{pmatrix} -59 & -93 \\ Z & -27 \end{pmatrix}$
 $= \begin{pmatrix} -3y & -32 & -57 & +8x \\ -9 & -8 & -15 & +2x \end{pmatrix} = \begin{pmatrix} -59 & -93 \\ Z & -27 \end{pmatrix}$
 $\therefore -3y - 32 = -59$
 $-3y = -27$
 $y = 9$
 $also -15 + 2x = -27$
 $2x = -12$
 $\therefore x = -6$
 $-9 - 8 = z$
 $\therefore Z = -17$

Most candidates, for this question could not get the product PQ of the matrices. Those who got PQ correctly failed to equate PQ = R and so could not get the equations in X, Y and \overline{Z} ; these they missed the correct values of X, Y and \overline{Z} and lost considerable marks.

(b)(i) Draw, on a graph paper, using a scale of 2cm to 1 unit on both axes, the lines x = 1;

y = 2; and x + y = 5

This question required candidates to draw on a graph paper using a scale of 2cm to 1 unit on both axes, the lines

x = 1;y = 2; and x and y = 5

(ii) Shade the region which satisfies simultaneously the inequalities: $x + y \le 5$; $y \ge 2$ and $X \ge 1$.

The majority of candidates who attempted this question did not know what to do with it. They seemed to have been frightened by the term inequality. However a small number of candidates draw the graphs required correctly and got good marks. Some drew the graphs of X = 1 and Y = 2 but could not draw the graph of X + Y = 5. Others drew all the graphs correctly but could not shade the region showing the inequality $X \ge 1$, $Y \ge 2$ and $X + Y \le 5$, and so lost marks considerably.

SCIENCE SUBJECTS

RÈSUMÈ OF THE SCIENCE SUBJECTS

1. <u>STANDARD OF THE PAPER</u>

The Chief Examiners' Report for most of the papers stated that the papers were of the required standard, free of ambiguities and compared favourably with those of previous years. For Chemistry 3(pg.) the marking scheme was exhaustive and provided alternative answers, and for Science Core 3(pg.177) it was detailed and flexible. For Physics 2(pg.156) according to the Chief Examiners report it was difficult to agree that all the questions were of the same standard and weight.

2. <u>CANDIDATES' PERFORMANCE</u>

Physics 3(pg.) stated better performance of candidates as compared to previous years. Physics 2(pg.156) also recorded better performance of candidates in parts I and II. Candidates performance in Physical Education 2 & 3 (pgs.147 & 153) were satisfactory as compared to previous year. For Health Science 3(pg.141) also stated an improved performance of candidates performance in Science Core 2(pg.177) was below expectation this was also the case for Chemistry 3(pg.134) for Chemistry 2(pg.120) performance of candidates can be rated as fair.

3. <u>CANDIDATES' STRENGTHS</u>

Candidates were able to adhere to the rubrics – Biology 2(pg.113) and Science Core 2(pg.177) issues of spelling mistakes and wrong formulae minimized in Biology 2(pg.113)

- Improvement in defining basic terms in Science Core 2(pg.177) and Biology 2(pg.113).
- An improved performance in the area of organic Chemistry Science Core 2(pg.177).
- Candidates manifested knowledge in the following areas Alovera leaf, orange plant leaf, biological significance and adaptation of termites. Biology 3(pg.116).
- Candidates from schools in the regions performed better than those in the city Agricultural Science 3(pg.110)

- Candidates were able to adequately answer questions on the following:-
- (i) why a team could be disqualified in a 4 x 400m relay.
- (ii) duties of a centre referee in a football game,
- (iii) importance of international sports competitions.
- (iv) name the types of bones in the human body Physical Education 2(pg.147).

For Physics 2(pg.156) candidates demonstrated strengths in the following:-

- Knowledge of units for respective qualities.
- Use of correct formulae for physical quantities.
- Performance of mathematical operations.
- Knowledge of appropriate formulae for different effects and reactions.
- Some indication of fundamental principles of Physics in a particular topic.
- Some candidates showed strength in spelling correctly, identification of diagrams, definition of terms Health Science 3(pg.141).

For Chemistry 3(pg.134) candidates showed strength in the following:-

- Recording titre values in the decimal place,
- Making proper table for recording readings,
- Correct calculations for volume,
- Using concordant values,
- Using correct symbols,
- Identifying correct mole ratio,
- Substituting correct values,
- Pulling work in tabular forms,
- Correctly copying test as instructed on the question,
- Labelling tests,
- Writing correct symbols and formulae,
- Writing final evaluations to three significant figures.

4. CANDIDATES' WEAKNESSES

- Inadequate preparation for the examination Chemistry 2(pg.120) and Science Core 2(pg.177).
- Inability to properly understand and interprete the questions Agricultural Science 3(pg.110), Science Core 2(pg.177) and Chemistry 3(pg.134)
- Poor drawing skills in Biology 2(pg.113).
- Poor communication skills Agricultural Science 3(pg.110), Science Core 2(pg.177), Physical Education 2(pg.147), Physics 2(pg.156) and Chemistry 3(pg.134).

- Incomplete syllabus Science Core 2(pg.177), Agricultural Science 3(pg.110) and Physics 2(pg.156).
- Inability to correctly label diagrams Biology 2(pg.113).
- Poor handwriting Physical Education 2(pg.147) and Science Core 2(pg.177).
- Non adherence to rubrics Physics 2(pg.156) and Chemistry 3(pg.134).
- Mathematical manipulations Physics 2(pg.156).
- Recording final quantities without units Physics 2(pg.156)
- Inability to label illustrated diagrams Health Science 3(pg.141).
- Failure to define terms or concepts correctly Health Science 3(pg.141).

The following weaknesses were highlighted in Chemistry 3(pg.134).

- Using wrong reagents to test samples.
- Cancellation of table of titre reading.
- Deliberate alteration of titre values.
- Incorrect IUPAC names.
- Wrong icons, charges and symbols.
- Inconsistent burette readings to two decimal places.
- Arithmetic error to obtain titre values from initial and final burette readings.
- Using non-concordant values to calculate average volume of acid.
- Identify correct mole ratio especially where redo and reactions apply.
- Failure to give final evaluations of concent rations to 3 significant figures and using correct units of the concentration.

5. SUGGESTED REMEDIES

- Candidates should have indepth knowledge of the subject and be fully prepared before attempting the exam.
- Teachers should exhaust and cover all topics in the syllabus.
- Teachers should expose candidates to practical work.
- Candidates should improve on their writing skills, familiarize themselves with technical terms and concepts.
- Candidates should improve on their spellings, Ministry should impress it on schools presenting candidates for Science to have equipped laboratories.
- Teachers and candidates should make use of previous Chief Examiners Reports to help overcome some of the mistakes that keeps repeating.
- Candidates should inculcate good reading habit to help improve on their spellings and writing skills.
- Schools should employ trained and qualified teachers.

- Qualified Science teachers should be motivated especially in remote areas.
- Laboratories should be adequately equipped.
- Candidates should improve on their drawing skills paying attention to specific/required size of diagram, clarity of lines and ruled guidelines.

AGRICULTURAL SCIENCE 3

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The standard of the examination questions was maintained when we equate it to the previous examinations. The entire rubrics were clear and straightforward. There was no ambiguity. The questions drawn were straightforward and within the scope of WAEC in house style. The scope of the WASSCE was considered. The questions were spread out to cover aspects of soils. Farm tools, mechanics, crop science and animal husbandry.

The only areas not covered were experimental set ups and understanding. There was no difficulty in awarding $\frac{1}{2}$ marks that could make calculation a bit harder to cope with.

The marking scheme had no problem or difficulty of understanding. There was no difficulty in awarding $\frac{1}{2}$ marks that could make calculation a bit harder to cope with.

The administrative set/arrangement had no problem like abandonment or centre, inavailability of working materials, scripts and the like.

The entire team meant for the centre was always with us. Within time they went around to see how the work was going on. They talked to us on the entire exercise. The allowances for conference were paid to all the workers at the conference centre.

2. <u>CANDIDATES' STRENGTHS</u>

The candidates' strengths varied greatly. There were candidates that did score high marks while others scored low marks.

I noticed that schools up the provinces showed marked interest in Agriculture. This is shown in their marks scored. The candidates in the city schools could not score high marks compared to schools in the country side.

The schools in the city aimed at other subjects because Agriculture could not be their career. They only study the subject to get mark then promote to the next class.

The Arts and commercial candidates feel agriculture is not for themand therefore hardly read it.

If Agriculture is to get what we ever want it be, the Government and ministries of Agriculture, Education and colleges must make agriculture a requirement added to English and Mathematics for entrance into colleges. My reason is that if all school going pupils and the like know that it is a requirement it will be better treated by everyone. With that done any case that comes for improving agriculture will gain grounds.

3. <u>CANDIDATES' WEAKNESSES</u>

The candidates made a lot of spelling mistakes. There was incorrect identification of specimens. No special penalty was given to minor ones like grammatical errors in their explanations or statement.

It could be recorded that only areas of wrong key scientific words/terms did not attract marks. This must have prevented some candidates not to earn high scores. Some candidates did not answer either the entire question or answer patches of questions.

Teachers handling the subject matter can help the pupils to learn their spellings by giving subject spelling tests. The candidates to adhere to instruction that affect their grades in the examination.

In areas where a question must be taught demands collective answer for all they gave separate for each of the specimens. Much time is wasted in writing and marking such a script. The candidates are to look at a question properly before they write the answer.

Questions 2 and 3 were unanswered by the candidates. This could be that they were not taught or they failed to study those topics.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(i) Hand trowel

The spelling for hand trowel was written by most candidates as <u>hand towel</u>. They were penalized because no mark was assigned to identification.

On the use of hand trowel, most candidates wrote this: it is used for plastering houses. It could be that the candidate had only seen the trowel used by mason.

(ii) The general maintenance called for was specimen A, B, and C. the candidates presented separate sets of answers for each of the tools. It was a waste of time on the sides of both the candidates and the examiner.

Q1(b) The drawing of watering can was not perfect. Some centres drew can with a single handle and the marking scheme had two handles. Most of the candidates could label correctly and they ended getting low scores.

QUESTION 2

(a) The candidates found difficulty to come p with the correct identification and therefore could not give right answers.

(b)(ii) and (iii) were not understood by the candidates. The processes the question asked for most did not get right.

(c) The area on the question asking for micro-organism was looked at as very strange. Most of them did not attempt it.

QUESTION 3

b(i) and (ii) were not attempted by majority of the candidates. Those that made the attempt to answer that did not get them correct.

QUESTION 4

a(ii) The effects of tapeworm (iv) on the host. Some of them said loss of appetite pale yellow in the colon. It appears they were not taught.

4(b) A good number of them attempted it and they got it correct. They got high scores from this question.

4(c) The uses given to horn is notaccepted and therefore it was not on the marking scheme. Almost all said that horns were used for calling people together.

BIOLOGY 2

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The paper was of the required standard and appropriate for this level.

Questions spanned a wide area of the syllabus and a fairly good balance between plant and animal biology, ecology and Genetics has been evident.

Questions were clear, straight forward and devoid of ambiguities.

The inclusion of two questions (Q1 and Q2) requiring drawings, was laudable. If continued candidates would place a high premium on drawing diagrams, a key pre-requisite for the study of the subject.

Poor diagrams hindered the scoring chances of the majority of candidates.

2. CANDIDATES' STRENGTHS

Unlike the previous year, there has been a careful selection of questions based on candidates' capabilities. This was evident in the ranges of marks scored between a preceding question and the one that follows.

Candidates have been able to grapple with the task of 'describing' by paying attention to only the key details.

Incidences of selecting questions from the wrong section have been very minimal; so also were wrong spellings of scientific terms. Majority of candidates used a new page to begin a new question making the identification of responses very easy.

Most of the definition given were short but contained the key scorable elements.

3. <u>CANDIDATES' WEAKNESSES</u>

Few candidates failed to write their names/index numbers on their answer booklets.

Most of the candidates who attempted questions 1 and 2 failed to score high marks because of substandard drawings. Drawings drawn lacked the requirements of a good drawing – specific siz4, clarity of lines, ruled guidelines etc.

Teachers should constantly engage pupils in practical work to help inculcate the habit of drawing biological diagrams.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

SECTION A

QUESTION 1

candidates were required to (a) state the characteristic features of members of the class mammalian (b) state two functions each of (i) ovary (ii) vagina and (iii) interms. (c) draw a diagram 8cm – 10cm long of a whole flower to show its parts.

The majority of candidates gave four correct characteristic features of mammals and therefore scored full marks. It must be emphasized that mammals in their reproduction, give birth to their young alive, without hatching from egg.

Responses to (b)(i)(ii) and (iii), were quite good with many candidates scoring two marks out of two for each organ. A common error made by most candidates was to perceive the developing embryo/foetus in the uterus, as a 'baby'. The term to use is 'foetus'. About 80% of the drawings of the flower were grossly substandard. The need for quality drawings must be emphasized by teachers of the subject.

QUESTION 2

Candidates were required to define the term dentition in (a)(i). in (a)(i). A diagram of the longitudinal section of the canine tooth should be drawn. In 2(b), candidates were to describe the process of photosynthesis.

The majority of candidates scored two out of two marks for defining dentition correctly. Most drawings of the canine tooth presented were poorly done. In most cases, the layers such as the enamel, dentine and pulp cavity were not clearly demarcated causing candidates to lose the three marks for 'details'.

Total marks scored for the diagrams, ranged between zero and six out of ten marks. Most candidates described the process of photosynthesis well by outlining the key details of the light and dark stages. Few candidates only gave a definition of 'photosynthesis'.

Teachers in their lessons and education must help pupils in distinguishing between a <u>definition</u> and a <u>description</u> of a biological process.

Marks scored for this response ranged between 2 and 6 out of eight.

QUESTION 3

In question 3(a), candidates were to (i) define the term pollution (ii) state three effects of air pollution on living things and in c(iii) state four ways of controlling air pollution.

In 3(b) candidates were required to name three air pollutants and one source of each.

The correct definition of the term 'pollution' was given in most cases, to score the maximum of two marks.

Majority of candidates scored maximum marks of three for stating correctly, three effects of air pollution on living things. A vague response such as 'air pollution causes disease' could not attract a score; but a response such as 'air pollution causes lung diseases/tuberculosis, did score.

Answers on the ways of controlling air pollution were generally good. However, a few non-scorable responses such as these ones were common:

- Banning old vehicles from using the roads
- Stopping the use of firewood for cooking
- Avoid cutting down of trees

Responses to 3(b) were generally good except for a few wrong sources of air. Pollutants named namely: carbon monoxide, and carbon dioxide.

It should be noted that carbon monoxide is produced from the incomplete combustion of fuel/exhaust gases, etc.

The exhaust of vehicle is not a source of carbon dioxide. The source is exhaust fumes.

In few cases, carbon monoxide was spelt wrongly as carbon dioxide.

SECTION C

QUESTION 6

Is a compulsory question to be answered by all candidates, to score a maximum of thirty marks.

Responses on the meanings and examples of the terms <u>hydrosphere</u> and <u>atmosphere</u> were good. Explanations of the 'cell theory' were equally good with most candidates scoring four out of four marks.

Majority of candidates scored the maximum of four marks in 6(d) for stating correctly, the structures used by animals in regulating body temperature.

In 6(e)(i) and (ii) viviparous organisms were given as examples of oviparous organisms and vice versa.

Such a flaw cost the defaulting candidates four marks.

Candidates should be advised to carefully read over their answers to avoid making such mistakes.

Responses on the importance of courtship behaviours were generally good, with most candidates scoring three out of three marks.

6(g) was the most poorly – answered part of question 6. Majority of candidates could not state correctly the structural adaptations for securing marks for reproduction in (i) domestic fowl and (ii) lizard.

BIOLOGY3

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The standard of the paper was good for a live Practical exams that has to do with the application of scientific skills in the laboratory and in the field. The paper also tested on the application of biological principles need everyday life and their ability to follow set instructions.

The questions and instructions were clear and to the point for candidates to obtain the answers. Although most candidates could not get correct and accurate responses some of them scored more than just half of the total mark of eighty excellent candidates scored to the range of fifty to sixty.

Reasons for poor performance can be attributed to the following:

- Majority of the candidates don't follow the rubrics of answering questions by simply identifying the correct question numbers with the answers. Much was evident in Question 1c(iii) – the reasons for the classification into Phylum and Class.
- Lack of the knowledge of the rules in Practical exams as most candidates' loss marks on quality and magnification of diagrams.
- Writing of wrong spelling of labels and technical terms also resulted in loss marks which are not accepted in practical examinations.
- Poor drawing of biological specimens. Most candidates lack the skills to draw specimens from observation based on set instructions which resulted into so much loss of marks.

2. <u>CANDIDATE'S STRENGTH</u>

The general performance not much encouraging although some candidates did very well. Some scored good marks in questions one and two. In question 1a(ii) a good number of candidates were able to give the differences between Aloevera Leaf and Orange Plant Leaf. The same went for subquestion 1b and 1c which required the responses on biological significance and adaptations of termites.

Most candidates were able to sight out the adaptive features of a termite with respect to its role in the colony.

Candidates who correctly answered questions on the classification of termites did so very well as the question was soliciting the recall of facts.

Some candidates were also able to give accurate physical structural differences in a corresponding manner and were able to score most of the marks.

2. <u>CANDIDATE'S WEAKNESSES</u>

- Most candidates had the problem of writing spellings of technical terms, one-word answers and taxonomical terms.
- Diagrams were poorly drawn as most had broken, woolly and wavy lines instead of smooth continuous lines.

- Guidelines were not ruled as most candidates were in the habit of free -hand drawing lines with a barb or arrow at the end.
- For some candidates comparison and differences were poorly done as the physical features do not correspond each other's e.g. Leaf shape broad as against leaf shape small.
- The rule of writing scientific name of living things correctly has still not be done by most candidates which starts with a capital letters and followed by small letters.
- Candidates still don't follow the rubrics of the questions and are still in the habit of giving answers far more than required.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

Study Specimens A, C, and E and use them to answer questions 1(a) to (c).

- (a) (i) Describe briefly the stem of specimen A (Aloe Vera Plant)
 (ii) In a tabular form, state four observable differences between the leaves of specimen A and C (Leaf of Orange Plant).
- (b) Cut part of the leaf of specimen A and Squeeze it between your fingers.(i) What is the observation?
 - (ii) Explain briefly the biological significance of the observations.
- (c) (i) State two adaptations of specimen E to its role in the colony
 (ii) Classify specimen E into its Phylum and Class.
 (iii) State two reasons each for the answers in (c)(ii).
 (iv) State four ways in which specimen E is of biological importance.

In question 1(a)(i), candidates were asked to give a descriptive features of the Aloevera stem. It served to be a difficult question for most or majority of the candidates, therefore a poor performance. However question 1(a)(ii) a good number of candidates were able to score since it was a tabulation of Physical feature of Aloevera Leaf and Orange Plant Leaf although majority gave non-complementary and non-corresponding answers.

Observations in question 1(b)(i) were correct by most candidates but could not give correct biological significance in 1(b)(ii) as most could not comprehend what the question meant.

Adaptations of Specimen E (Soldier termite) with respect to its role in the colony in question 1(c)(i) was a challenging one which was expressed by a low performance.

Specimen S 1(c)(ii) (iii) an 2(iv) were straight forward answers they required recalled answers of the characteristics of Phylum Arthropod an it class lusecta of specimen E (Soldier termite).

QUESTION 2

- Study Specimens F and H and answer questions 2(a) to (d).
- (a) (i) State three observable features of specimen F.
 - (ii) State two Physiological factors and one climatic factor that have brought about the changes that could transform specimen F to H.
- (b) Make a drawing 8cm 10cm long of specimen F and label fully.

- (c) (i) In a tabular form, state five observable differences between specimen F and H.
 (ii) State the modes of dispersal of specimen H.
 (iii) Give one reason for the answer in (c)(ii).
- (d) State: (i) type of fruit; (ii) Placentation of specimen H.

Question 2(a)(i) asked of the observable features of specimen F (unripe/green Mango fruit). Most candidates were not grounded with the technical terms in dicotyledonous fruits like Mango viz epical, mesocarp, endocarp and penicarp. 40% of the candidates who attempted this question did very well. In the case of question 2(a)(ii), Physiological factors and climatic factors responsible for the change of specimen F to H. Majority of the candidates knew little or nothing less than 30% got the answers right.

Question 2(b) refers to diagram or drawing of specimen F (unripe mango fruit) displaying the features from the longitudinal view. Majority of the candidates lost marks for lack of knowledge on rubrics of drawing biological diagrams which include Title, quality, details and labels. However smart candidates were able to score most of the marks on <u>Quality</u> and <u>Details</u>. (See diagram below).



Question 2(c)(i) which refers to the observable differences between specimens F (unripe mango) and H (ripe mango) was poor done by 50% of the candidates as most of the answers do not correspond. Some did not follow the rubrics of tabulation which led to considerable loss of marks.

Subquestion 2(c)(ii), (iii), d(i) and d(ii) required more observations and recalling of facts, which most candidates got right.

QUESTION 4

Question 4 study specimens P and Q and answer questions 4(a) to (c).

- (a) (i) Name the part of the organism where each of specimens P and Q are located.
 - (ii) State three observable structural features of biological significance in each of specimens P and Q.
- (b) (i) In a tabular form, state three observable structural similarities between specimens P and Q.
 - (ii) State four observable structural similarities between specimens P and Q.

(c) Make a drawing of 6cm to 8cm long of the anterior view of specimen P and Label fully.

Question 4(a)(i) has to do with the location of specimens P (thoracic) and Q (lumbar) vertebrae in organisms. A straight forward question demand a recall of fact of which most candidates scored.

In question 4(a)(ii) which demanded for observable structural features of biological significance in specimens P (thoracic vertebra) and Q (Lumbar vertebra), some candidate s were using words like 'help' to state the functions of physical features of organs or organisms instead of those structure directly performing the functions. In the past and up to date many bright candidates have lost and are losing marks needlessly that could earn them all of the marks. E.g. Specimen P has large centrum; to help give support to the neck. Nevertheless smart candidates earned most of the marks in 4(a)(ii).

Question 4(b)(i) in which candidate were asked, differences between specimens P and Q, some candidates were giving functional differences of the structures. But candidates who understood the question answered it well in a tabular form. For the subquestion of 4(b)(ii) majority of the candidates were able to give structural similarities though spelling mistakes cost them so much loss of marks.

The drawing of the anterior view of specimen P (thoracic vertebra) in question 4(c) was a difficult than for most candidates not to talk about the Quality and Details of the diagram which carried most of the marks. Most candidates lost mark for Quality and Detail. The reason is simple most candidates don't even have the ability to draw biological specimens in an exams. It is therefore recommended that regular practical lessons be conducted by features in schools and even private lessons.



CHEMISTRY 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

This should indicate the standard of the paper and the performance of candidates in comparison with those of previous years.

Comments ... special difficulties that might have affected candidates Performance. The standard of the paper was good in terms of quality, validity, reliability and syllabus specicatoins. Candidates performance in the exams can be rated as fair.

2. <u>CANDIDATES' STRENGTHS</u>

Report in detail any observed good performance and suggest ways of improving these qualities.

There was not any exceptionally good performance exhibited by the candidates. Most of them answered to all the questions required and their performances matched with their ability manifested for the exams.

Candidates can be able to be successful for the exams, by being self-reliant and the development of proper skills and attitudes which enable them to be able to master Knowledge properly in the learning process.

3. <u>CANDIDATES' WEAKNESSES</u>

Report in detail any observed weaknesses and suggest remedies for overcoming them

Some of the candidates weaknesses occurred as a result of the candidates being ill prepared for the exams.

Student must learn to do a self-mastery of knowledge in their leaving process as well as to be independent and self-reliant as these qualities will equip them better for the exams.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTION

QUESTION 1

(a) What is a functional group?

It is an atom or group of atoms or radicals which gives an organic compound its characteristics chemicals properties.

Candidates did not have difficulties answering to this question because it was a straight forward question in which only the definition of a functional group was required. However some candidates started well with the fact that it is an atom or a group of atoms but failed to state that it gives compounds its characteristic properties.

(b)(i) Define each of the following terms

i. Aliphatic compound

ii. Aromatic compound.

Organic compounds with carbon atoms arranged in open chains branched chains orcyclic without delocalised electrons.

Organic compound containing benzene rings or containing rings of carbon atoms in which pi elections are delocalised.

Most candidates attempted these questions in which they had to give a definition each for the two concepts. Candidates performed well with these questions which were straight forward and easy to remember with a proper mastery of the concepts.

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(c) Draw the structure of each of the following compounds:-
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(i) 3-chloro-3 methylbutan-2-ol;
(ii) 3-methylbutanoic acid.



Most candidates did not perform well with these questions. The derivation of the structures from the nomenclature of the compound was a difficult task for most candidates who gave absurd answers because of their level of preparedness for the exams. They were expected to have learnt organic structures under the topic Isomerism in the syllabus.

d). State three properties of carbon that is responsible for its ability to form many compounds.

Carbon has the ability to form many compounds because it has four electrons in its outer most shell which are available to form bonds.

- It has the ability to catenate to form long chains
- It can form straight chains, branched and ring structures
- It can form isomers
- It can form single, double and triple carbon carbon bonds.
- It can combine with so many elements.

e). Why is it not advisable to react a metal trioxocarbonate (iv) with a mineral acid in a sealed glass flask?

Pressure builds up from CO₂ gas which may explode or shatter the glass flask.

Most candidates did not perform well with this question which involves an application of the knowledge of CO_2 to answer the question.

(f) If 10.2g of a salt Q dissolves in 15.4 cm³ of distilled water at 40^oc Calculate the solubility of Q in mol dm⁻³ at 40^oc. [Mr Q = 331]

Mass of salt Q = 10.2g

Mr Q = 331

Vol of distilled $H_2o = 15.4cm^3$

Determination of the solubility of Q is as follows substituting into the equation No of moles Q $\frac{\text{mass Q}}{\text{Mr Q}} = \frac{10.2}{331}$

= 0.0308 moles.

 15.4cm^3 of H₂O dissolve 0.0308 mol of Q

 $\begin{array}{l} \therefore \ 1000 \ cm^3 \ H_2 o \ would \ dissolve \\ \underline{1000} \times \ \ 0.0308 \\ 15.4 \end{array}$

 $= 2.0 \text{ mol dm}^{-3}$

Most candidates attempted this question. Some were able to figure out the no of moles of Q required in the reaction which was simple to determine. However determining the solubility from the no of moles of Q seemed difficult for most candidates. Candidates were expected to have mastered calculations on solubility.

g) Explain briefly why an increase in temperature causes the rate of a chemical reaction to increase.

Increasing the temperature in a chemical reaction increases the kinetic energy of the molecule and increases number of collisions hence number of effective collisions increases number of mole cules with kinetic energy greater than activation energy leading to increase in the rate of the reaction.

Candidates who attempted this question could not fully explain why an increase in temperature causes the rate of a chemical reaction to increase. Basically this question required candidates to be fully conversant with the Kinetic theory of matter.

h) State two functions of a salt-bridge in an electro chemical cell.

Any two functions of a salt bridge in an electro-chemical cell are listed below.

- Connects the oxidation half-cell to the reduction half-cell.
- Maintenance of electrical neutrality with the internal circuit/maintains charge balance/ serves as a passage for the charges from one electrolyte to the other.
- Completes the electrical circuit/cell
- Prevents transference or diffusion of the solutions from one half cell to the other prevents inter boundary potential difference.

This was another seemingly difficult question as most candidates were not able to correctly state the two functions of the salt bridge.

i) State two large-scale uses of hydrogen in the chemical industry

Any two large-scale uses of hydrogen in the chemical industry are listed below

- Manufacture of ammonia or Haber Process
- Hydrogen action of fats and oils or the making of margarine
- Hydrocracking or it is used in oil refineries
- Conversion of coal to crude oil.
- Manufacture of plastics
- Used in the making of gaseous fuels
- Liquid hydrogen is used as a rocket fuel.
- Conversion of coal to crude oil
- As a reducing agent in the production of metal (e.g. Cu and Pb from their oxides)
- Manufacture of methanol
- Filling weather balloons
- In oxy-hydrogen flames (for welding and cutting metals)

j) State environmental effect of burning fuels.

Any one environmental effect of burning fuels are:

- Green House effect
- Global warming
- Climate change
- Depletion of ozone layer.

Most Candidates performed well with this question.

QUESTION 2

(a). Consider the following compounds: NaH, B₂ O₃, CH₄, SnO

Choose from the list one

- (i). Amphoteric substance
- (ii). Substance whose aqueous solution is acidic

- (iii). Substance whose aqueous solution is basic
- (iv). Substance which is a reducing agent.
 - i. SnO
 - ii. B_2O_3
 - iii. NaH
- iv. NaH

Most Candidates performed well with this question although they seemingly had difficulty with determining which substance was a reducing agent.

- (b)(i) The enthalpy of neutralization of sodium hydroxide with hydrochloric acid is 57.5kj mol⁻¹, the same as the enthalpy of reaction between $H_3O^+(aq)$ and $OH^-(aq)$. Give reasons why this is so.
- The enthalpy of neutralization of sodium Hydroxide with hydrochloric acid is 57.5 kjmol⁻¹the same as the enthalpy of reaction between H_3O^+ (aq) and OH(aq). Give reasons why this is so.
- (ii) The enthalpy of neutralization for the following systems are:

CH ₃ COOH NaOH	55.2 kj mol ⁻¹
HCN NaOH	11.7 kj mol ⁻¹

Give reasons why the values are different from that given in 2(b)(i).

NaOH and NaCl, the reaction is between a strong acid and a strong base. Both substances completely dissociate in solution. The reaction is between the ions OH^- and $H^+/H_3 O^+$ to give one mole of a salt.

iii.CH₃COOH + NaOH; CH₃COOH is a weak acid which can only partially dissociate. Energy is required to complete the dissociation, hence \triangle H is lower. HCN + KOH; HCN is a weak acid which only partially dissociates. In solution HCN forms a polymer chain through hydrogen bending, hence the H⁺ is very difficult to release.

Most candidates did not perform well with this question except the exceptional ones. This is a clear indication that a proper mastery of the topics acid, bases, salts and energetics were not done by the candidates.

Teachers preparing candidates for the exams must ensure that candidates master the above topics well to the extent that they can be able to interpret phenomena as well.

(c). In a reaction it was found that 3.0g of a metal x was oxidised by 25.0cm³ of 0.10mol dm⁻³ K₂ Cr₂ O₇ under acidic conditions.

i. Deduce the mole ratio between X and $Cr_2O_7^{2-}$ ion ii. Write a balanced equation of the redox reaction.

iii. Give the oxidation numbers of chromium and X in both their reduced and oxidised forms

[Mole mass of x = 200.6]

(i). The No of moles of $Cr_2 O_7^{2-}$ used = $\frac{25 \times 0.1}{1000}$ = 0.0025

No of x <u>used</u> = 3.0 = 0.015200.6

Mole ratio = 0.015: 0.0025

= 6:1

- (ii). $\operatorname{Cr}_2 \operatorname{O}_7^{2-} + 14 \operatorname{H}^+ + 6X \longrightarrow 2\operatorname{Cr}^{3+} + 7\operatorname{H}_2\operatorname{O}$
- (iii). <u>Reduced forms</u> Chromium; $Cr^{3+} = +3$

X = 0

Oxidised forms Chromium $Cr_2 O_7^{2-} = +6$ $X^+ = +1$

Most candidates did not perform well with this question.

They had difficulties deducing the mole ratio between x and $Cr_2 O_7^{2-}$ ion, balancing of the redox reaction as well as the determination of the oxidation numbers of chromium and x in both their reduced and oxidised states.

Difficulties arose in answering to the question because of the inadequate mastery of the topic oxidation and reduction. This topic covered all aspects of the question asked. A proper mastery of the topic by the candidates would have enabled them to have tackled the question well.

(d)(i) Outline the principles involved in partition chromatography.

- i. Describe briefly how you would use the Principles of partition chromatography to separate a sample of Kerosene which is known to be contaminated with water
- ii. Partition Chromatography is separation of components of mixtures using two immisable solvent systems one stationary and the other mobile. The components of the mixtures have different partition coefficients or different solubilities in the two solvent phases.
- iii. Pour the mixture of Kerosene and water into a separating funnel, and allow to stand undisturbed for some time so that separate layers of water and Kerosene are formed. The water would be lower a layer and be collected leaving the kerosene in the funnel.

Most candidates were not familiar with the concept of partition chromatography. They were more familiar with paper chromatography as such they did not perform well with this question.

When the concept of separation of mixtures is being taught to candidates, they should be taught in depth about partition chromatography and not just paper chromatography. Experimental work should be a part of the learning process, so that candidates will be aufait with the separation of mixtures using the technique.

(e). An isolope of an element Q is represented by the symbol 31 What does the superscript indicate. 15

It indicates the mass number or total number of protons and neutrons.

This was a popular question, very easy for most candidates although there was a misconception for some candidates who wrote atomic mass instead which was not correct.

QUESTION 3

(a)(i) Would the concentration of the products formed in any chemical reaction increase with increasing temperature?

No, it would not change.

(ii) Give reasons for your answer in 3(a) i.

If the reaction is an equilibrium reaction and the forward reaction is exothermic, increasing temperature will favour the backward reaction, thus the concentration of the product will decrease.

II (i) Yes

(ii) If the reaction is an equilibrium reaction and the forward reaction is endothermic, increasing temperature will favour the forward reaction thus the concentration of the product will increase.

III (i) No

(ii) If the reaction is not an equilibrium reaction increasing the temperature will increase the rate of reaction but the amount of product will not be affected.

It was a seemingly difficulty question for candidates as they were not able to answer the questions correctly. These questions were drawn from the topics, equilibrium and rates of reaction. A proper mastery of the topics by candidates would have enabled them to answer the questions with ease.

(b)(i) Which two of the following gases would show the greatest deviation from the ideal; behaviour? H₂, N₂, O₂, Cl₂, So₂ and NCl₃ (ii) Give reasons for you answer in 3 (b) (i)

(i). So₂ and NCl₃

(ii). Molecules which have the greatest attractive forces largest sizes would show the greatest deviation because of dipole – dipole interactions.

Most candidates did not perform well with this question which was drawn from the topic kinetic theory of cases. They could not correctly identify and explain about gases which show the greatest deviation from the ideal behaviour. Failure to do so was as a result of an in adequate mastery of the topic by candidates.

(c), Explain briefly

(i.) Why the first ionization energies of the group (VII) elements decreases down the group.(ii.) The trend in the boiling points of the group (VII) elements down the group.

i. The first ionization energies of the group (VII) elements decreases down the group because of increasing distance of valence elections from the nucleus or increased shielding from inner shells reduces attraction between nucleus and valence electrons.

The boiling point increase down the group for group (VII) elements, the size of molecules also increases down the group.

The exceptionally good candidates were able to discuss about the trend of the ionisation energies of the group VII elements of the Periodic table.

(d) In an experiment to determine the solubility of $KC10_3$ at different temperatures the following results were obtained.

Temperature /0C	0	10	20	30	40	50	60
Solubility in g/dm3	14	17	20	24	29	34	40

i. Draw a graph of temperature (x - axis) against solubility (y - axis).

(ii). Use your graph to determine.

- I the solubility of $KC10_3$
- II How much of the $KC10_3$ will crystallise out when a saturated solution of the salt is cooled from $55^{\circ}c$ to $25^{\circ}c$
- (ii). From the graph the solubility of $KC10_3$ at 55% is between 36.5 37.5 g dm⁻³

II. Determination of the solubility at $55^{0}c=36.5-37.5\,g\,dm^{-3}$ Solubility at $25^{0}c=21-22\,g\,dm^{-3}$

If the saturated solution is cooled from $55^{\circ}c$ to $25^{\circ}c$

Mass of KC103 which will crystallise out

= 36.5 - 21 = 15.5g

or

37.5 - 22 = 15.5g

This was an easy question for most candidates as they were able to draw the graph using appropriate scale, they were able to determine the solubility of $KC10_3$ at different temperatures as well as determination of the mass of $KC10_3$ crystallising out when the solution cools from 55° C to 25°C

e). Explain briefly the term end point as used in titrations.

An end point is the point in the titration at which all of one substance present has reacted with the other substance and is indicated by a colour change.

Candidates wrote a variety of wrong answers for this question. This clearly shows that candidates were using the word without really knowing its definition. A mastery of this term is a requisite for candidates as they study the topic Volumetric Analysis.

QUESTION 4

- a i. Name one metal that could be extracted by
- (i). Electrolysis
- (ii). Reduction with carbon

a (i) Any one of the elements listed below can be extracted by electrolysis

- Sodium
- Calcium
- Aluminium
- Magnesium
- Potassium

(ii) Any one of the elements listed below can be extracted by reduction.

- i. Copper
- ii. Iron
- iii. Tin



These were popular questions for most candidates who were able to write correct answers easily.

Most candidates gave a variety of wrong answers which was a result of the insufficient mastery of the topic electrolysis.

(c). Copy and complete the table below

Process	Products	Major raw material(s)
Heber Process		
Solvay Process		

This was not a difficult question for most candidates as the question tested candidates knowledge of the Haber and Solvay processes respectively.

d). An electric current of 100 A is passed through a molten liquid of sodium chloride for 5 hours. Calculate the volume of sodium chloride liberated at s. t. p. [1 Faraday = 96,000C M_v = 22.4 dm³]

The reaction taking place at the anode $2Cl \rightarrow Cl_2 + 2e$

Q = It

 $= 100 \times 5 \times 3600C$

= 1800000 C

Amount of chlorine liberated

(2 × 96500) C = 22.4m³∴ 1,800,000 C = <u>224</u> × 1800000 2 × 965000 = **208.9dm³**

Most candidates wrote partially correct answers for some parts of the question Candidates have to be more careful in answering to questions involving calculations in electrolysis so that they will not miss out on the steps. Candidates preparing for the exams must be encouraged to do a lot of practice exercise in order be proficient with this topic.

e). Describe briefly

(i) what would be observed where so dium reacts with water?

(ii) a chemical test for water.

It reacts vigorously with water with a pop sound given off. Hydrogen turns into a round ball moves over the surface of the water making a hissing sound producing while fumes of a gas. The round ball becomes smaller and finally explodes.

Add water to

- Cobalt (ii) Chloride/ Blue to pink
- Anhydrous CuSo₄ White to blue.

e). This question was fair as most candidates who attempted this question were able to list some of the typical characteristic of the reaction. They were also able to state the chemical test for water.

QUESTION 5

(a)(i) Name three sources of water

- (ii) State two sources of water pollution
- (iii) State the effect of :
 - (I) boiling temporary hard water
 - (II) adding Sodium trioxocaibonate (IV) crystals to permanent hard water.

(a.) i) Any three sources of water are listed below

- well water
- bore hole
- rain

- river
- ocean
- spring
- lake

ii) Any two sources of water population are listed below:

- Sewage
- agricultural pollution
- Oil pollution
- radioactive substances
- river dumping
- Thermal pollution
- I Boiling water softens the water removes the dissolved calcium a magnesium hydrogen carbonate.
- II Addition of Sodium trioxocaibonate (IV) crystals to permanents hard water softens the water by the removal of Calcium a magnesium ions.

Candidates did not have any difficulty answering to these questions above as they were simple recall questions.

b). Consider the following reaction scheme.



- (i) What type of reaction is taking place in reaction 1?
- (ii) Name substances X and Y
- (iii) Why should NaNO₃ be heatedstrongly to produce X and Y?
- (iv) Name the process in reaction II
- (i). Thermal decomposition reaction is taking place in reaction 1
- (ii). Substances X and Y are Sodium dioxiontrate (III) and oxygen.
- (iii). NaNO₃should be heated strongly toproduce X and Y because of strong electrostatic force of attraction.
- (iv). Dissolution is the process in reaction II

The questions were fair, most candidates attempted these questions with partially correct answers. These questions required application of knowledge on different concepts such as rates of reactions, bonding and separation of mixtures.

(c)(i) Write a chemical equation for the laboratory preparation of ammonia.
(ii) State the method of collecting the gas prepared in 5(c) (i).

(iii) Name two compounds that are used as drying agents for gases.

(i) $Ca(OH)_2(s) + 2 NH_4 Cl_{(s)} \rightarrow CaCl_{2(s)} + 2H_2O + 2NH_{3(g)}$

(ii) The method of colleting the gas is by upward delivery a down ward displacement of the

gas.

(iii) Any two compounds used as drying agents for the gases are:

- Quick lime a calcium oxide
- Fused or anhydrous calcium chloride
- Concentrated tetraoxosulphate (VI) acid
- Silical gel.

These questions were fair, questions were drawn from compounds of Nitrogen specifically Ammonia; Most candidates attempted the questions with a variety answer Failing to provide the right answers to the questions was a result of an inadequate mastery of the topic. Candidates are encouraged to treat this topic seriously and learn it well in the preparatory stages for the exams.

d). Ammonia is manufactured in the industry by the Haber Process.

- i). State the sources of the raw materials.
- *ii).* Name two impurities removed during the purification of the raw materials
- iii). In what state is the final product collected?
- *iv).* Explain briefly your answer in 5(d) (iii)

The sources of the raw material for the Haber Process are: Nitrogen which is obtained from the air and Hydrogen from natural gas.

Any two impurities removed during the purification of the raw materials are dust particles

- Carbon (iv) oxide
- Water vapour
- The final product is collected in the form of liquid.
- Because it has a high boiling point.

These questions were fair A further test of knowledge on Ammonia. Most candidates attempted these questions which did not pose any difficulty for them as a simple recall of knowledge on ammonia was required in answering the question.

e). Explain briefly why a solution of trioxonitrate (v) acid turn yellowish on storage for some time.

The yellowish colour is caused by dissolved nitrogen (IV) oxide which results from the slow decomposition of the acid.

A fair question testing the observational experimental skills of candidates. A few candidates wrote the correct answers. Candidates are encouraged to be able to explain experimental observational phenomena which involves a mastery of the knowledge.

CHEMISTRY 3

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The examination was drawn on two parallel papers A&B. Both were within the standard of the syllabus. The marking schemes were exhaustive providing alternative answers.

The performance of the candidates was low as compared to the previous year. This could be attributed to:

- Incomplete coverage of the syllabus
- Low level of prepared ness for the examination
- Lack of or inadequate laboratory practice
- Inadequate knowledge / understanding of basic concepts and principle
- Lack of access to chief examiners yearly reports in schools to help overcome the perennial mistakes.

2. <u>CANDIDATES' STRENGTHS</u>

There was slight improvement in:-

- Recording litre values in two places of decimal
- Making proper table for recording the readings
- Correct calculation for volume of acid used final reading minus initial reading
- Using concordant values to calculate for average volume of acid with correct unit
- Using correct symbols for concentrations (g/mel, mol/dm3, dm3 etc.)
- Identifying correct mole ratio
- Substituting correct values in the formula to find concentrations.
- Putting work in tabular form to show test, observation and inference
- Copying strictly the tests as instructed on the question paper using correct reagents.
- Labeling tests corresponding to the observation and inference
- Writing correct symbols and formula
- Writing final evaluations to 3 significant figures.

3. <u>CANDIDATES' WEAKNESSES</u>

The same common mistakes reported year in year out continue to cause candidates perform poorly.

- Misinterpretation of questions
- Failing to adhere strictly to test instructions.
- Failing to write the state of the samples used.
- Using wrong reagents to test samples
- Cancellation of table of titre reading
- Deliberate alteration of titre values
- Incorrect NPAC names
- Wrong ions, charges and symbols
- Common spelling mistakes
- Inconsistent burette readings to two places of decimal
- Arithematic error to obtain titre values from initial and final buretle readings.
- Using non concordant values to calculate average volume of acid.

- Identifying correct mole ratio especially where redox reactions apply.
- Failing to give final evaluations of concentrations to 3 significant figures and using correct units of the concentration (g/dm3, mol/dm3, g/ mol etc).

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

A is a solution of potassium tetraoxomanganganate (vii) B is a solution of iron (ii) chloride containing 4.80g of the salt in 250 cm3 of solution.

(a) Put A into the burette. Pipette 20.0cm3 or 25.0cm3 of B into a conical flask, add 20.0 cm3 of H2 SO4 (aq) and titrate with A.

Repeat the titration to obtain concordant titre volume of A used. Tabulate your results and calculate the average volume of A used. The equation of the reactions: $Mn0^{-}_{4}(aq) + 5Fe^{2+}(aq) + 8H^{+} \rightarrow mn^{2+}(aq) + 5Fe^{3+}(aq) + 4H_2O(i)$ (b) From your results and the information provided, calculate the: (i) Concentration of B in Mol dm⁻³. (ii) Concentration of A in Mol dm^{-3;}

(iii) Number of moles of Fe2+ in the Volume of B Pipetted. (FeCl₂= 127g mol⁻¹)

A is a solution of potassium tetraoxomanganate (vii) B is a solution of iron (ii) chloride containing 4.80g of the salt in 250cm3 of solution. (a) put A into the burette, pipette 20.0cm3 or 25.0cm3 of B into a conical flask, add 20.0cm of H2504(aq) and titrate with A. repeat the titration to obtain concordant titre values.

Tabulate your results and calculate the average volume of A used The equation of the reaction is MN) 4- (aq) 5 Fe 2(aq +8H aq) \longrightarrow Mn 2+ (aq) + 5 Fe 3 + (aq) + 4H20(i)

(b) From your results and the information provided, calculate the:

(i) Concentration of B on Mol dm⁻³

(ii) Concentration of A in mol dm-3

(iii) Number of moles of Fe 2+ in the volume of B pipelted. {fecl2=127g mol-1}

Attempted at this question was encouraging. There was considerable accuracy in tabulating and recording of titre values obtained from the volumetric analysis which earned them vital marks. However, marks were lost as a result of the perpe mistakes:

1(a) inconsistent recording of burette readings to 2 place of decimal.

- Deliberate alteration of burette readings
- Can collation of tables to construct Neo ones mathematical error in obtaining titre values from initial and final readings.
- Using non- concordant values to obtain average volume of titres. 1(bi) some candidates failed to:
- Give correct unit of concentration for mass concentration (gdm-3) and moles concentration (moldm-3)

1(bii) some candidates failed to identify the mole rating (1:5) from the redox reaction equation thus lost vital marks for substiting correct values in the evaluation.

Few also could not write final evaluation to 3 significant figures with correct unit.

1 (biii) a good number could net score for number of moles of Fe2= in the volume of B.

QUESTION 2

 \overline{C} and \overline{D} are inorganic salts. Carry out the following exercises on them. Record your observations and identify any gas (es) evolved. State the conclusions you draw from the result of each test.

- (a) Put all of C in a test tube and add about 5cm3 of distilled water. Shake thoroughly and test the resulting solution with litmus paper. Divide the solution into three portions.
 - (i) To the first portion and NaOH (aq) in drops, then in excess.
 - (ii) To the second portion, add NH3 (aq) in drops, then in excess.
 - (iii) To the third portion add AgNO3 (aq) followed by HCL(aq)
- (b) (i) Put all of D in a test tube and add about 5cm3 of distilled water. Shake thoroughly and feel the test tube.
 (ii) To about 2 cm³ of the solution add HCl(aq).

C and D are in organic salts. Carry out the following exercises on them. Record your observations and identify any gas/es) evolved. State the conclusions you draw from the result of each test a put all of c in a test tube and add about 5cm3 of distilled water.

Shake thoroughly and test the resulting solution with litmus paper. Divide the solution into three portions.

- (i) To the first portion add Noah (aq) in drops, then in excess.
- (ii) To the second portion, add NH3 (aq) in drops then in excess.
- (iii) To the third portion add AgNo3 (aq) followed by Hd(aq).

(b) (i) put all of D in a test tube and add about 5cm3 of distilled water. Shake thoroughly and feel the test tube.

(ii) To about 2cm3 of the solution add Hd(aq). Few candidates scored very low a zero mark on this question because they could not:

- Construct/ put their work in tabular form
- Show evidence of dissolving the salt in water indicating they performed wrong tests (worked on dry sample).
- > Write the correct reagents used for a particular test.
- Write correct formula charges of 10ms e.g. cl, so32-, co32- etc.

> The correct presentation of the table should be:

	Test	Observation	Inference
(a	C distilled water + water	C dissolved to form a the /greenish	-
	shaking	(solution)	
	Resulting solution + litmus	Solution turns blue litmus paper	Solution acidic
	paper	red	
(i)	1 st portion + naott (aq) in drops	Blue precipitate insoluble in	Cu2+(present)
	Then in excess	excess	
(ii)	2 nd perlient + Naott (aq) in	(Light) blue precipitate p	
	drops then in excess		
		Precipitate dissolves in excess to	Cu 2+
		form a deep blue solution	
(iii)	3nd portion + Agno3 (aq)+ Hcl	White precipitate formed	Cl cr co3-2 or S 2-2
		Precipitate insoluble	S032-
			Cl- present
(bi)	D + distilled water touching	D dissolve to form a colurless	Dissolution is
	/feel	solution	endothermic
		Test tube feels cold on touching	
(ii)	D(aq) + Hcl(aq)	Effeavecnce colourless odorless	Co2 from co3 ²⁻ or
		gas evolved	HCO3-
		Gas turned time water milking	

State the observations would be made then each of the following reactions is carried out in the laboratory.

(a) Addition of 2cm3 of bench H2so4 to 2cm 3 of barium chloride solution

(b) Addition of 2cm3 of dilute hydrochloric acid to lg of powdered iron (ii) sulphide(fes).

(C) Addition of 2cm3 of dilute hydrochloric acid to 1g of iron fillings and allowed to stand for some time candidates performed very well on this question. Indicated knowledge on basic tests carried out in the laboratory using common mineral acids.

ALTERNATIVE B

QUESTION 1

D is a solution of a dibasic acid, H2Y, containing 1.4g in 500cm3 of solution. *E* is 0.105 Mol dm-3 KOH.

(a) Put D into the burette and titrate it against 20.0 cm3 or 25.0 cm-3 portions of E using methyl orange as indicator.
 Repeat the titration to obtain concordant titre values.

Repeat the niranon to obtain concordant nire values.

Tabulate your results and calculate the average volume of D used.

The equation for the reaction is:

 $H_2Y(aq) + 2KOH(aq) \rightarrow K_2Y(aq) + 2H_2O(i)$

- (b) From your results and the information provided, calculate the :
 - (i) Concentration of D in mol dm-3;
 - (ii) Molar mass of H2 Y;
 - (iii) relative atomic mass of Y;
 - (iv) number of hydrogen ions in 1dm3 of $D(N_A = 6.02 \times 10^{23})$

D is solution of a dibasic acid, H2 Y, containing 1.4g in 500cm³ of solution. E is 0.105 mol Dm-3 KOH.

(a) Put D into the burette and titrate it against 20>0cm3 or 25.) cm³ portions of E using methyl oranges as indicator.

Repeat the titration to obtain concordant titre values. Tabulate your results and calculated the average volume of D used. The equation for the reaction is: H2Y (aq) + 2KOH (aq) ------ K2Y (aq) + 2H2O (l)

- (b) From your results and the information provided, calculate the
 - (i) Concentration of D in mol dm-3
 - (ii) Molar mass of H2 Yi
 - (iii) Relative atomic mass of Y,
 - (iv) Number of hydrogen ions in 1dm3 of D (Na=6.02x 1023)
 - (v) The demands of the question was for candidates to determine the molar mass of an unspecified acid and also the relative atomic mass of the radical component of the acid.
 - (vi) Candidates using the formula method calculated the concentration of D in moldm -3 co9rrectly but most could not calculate for the molar mass of H2Y and so did not get the atomic mass of Y correct. Only very few candidates also calculated correctly the number of hydrogen ions present in 1dm3 of D.

$$\frac{C_{\rm D} V_{\rm D}}{CEVE} = \frac{1}{2}$$

$$CD = \frac{CEVE}{2VD} = \frac{0.105 \text{ x } 20.0/25.0}{2 \text{ x vd}}$$

$$= \text{say amoldm-3}$$
Molar Mass of H2 Y

(ii) $\frac{\text{Molar Mass of H2 Y}}{500 \text{ cm} - 3 \text{ of D contains } 1.4\text{g of H2Y}}$ $\frac{1000 \text{ cm} 3 \text{ of D will contain } 1.4 \text{ X } \frac{1000}{500}}{500}$ $= 2.8 \text{ gdm}^{-3}$

(iv) Relative atomic mass of Y Molar Mass of H2 Y =B 2 + y = b

(bi),

$$Y = B - 2 = say C$$

 (v) Number of hydrogen 10ms H2 y(aq) =2H+ Y2-1mole of H2Y contains 2 moles of H+ ions

A moles of H2 Y will contain 2 x a moles of ions number of H +ions is $6.02 \times 10^{23} \times 2a$ say dions.

F is a double salt. Carry out the following exercises on F. Record your observations and identify any gas/es evolved.

State the conclusions you draw from the result of each test.

- (a) Put all of F in a beaker and add about 10cm3 of distilled water. Stir the resulting solution thoroughly. Test the solution with litmus paper.
- (b) (I) To about 2cm3 of the solution, add bad2 solution followed by HCL (aq)
 - (ii) To another 2cm3 portion of the solution, add Na OH (aq) in drops and then in excess. Heat the mixture.
 - (iii) To another 2cm3 portion of the solution add K3Fe (CN) 6 solution.

Like in alternative A candidates last marks for not

- Following instructions
- Shewing evidence in subsequent tests of dissolving salt in water resulting on working on solid referred to as wrong test.
- Tests performed were not stated to correspond to the appropriate observations and inferences.
- Stating wrong formulae for ions e.g. so3-, NH3 +etc.

QUESTION 2

F is a double salt. Carry out the following exercise on F. record your observations and identify any gas (es)

State the conclusions you draw from the result of each test

- (a) Put all of F in a beaker and add about 10cm3 of distilled water Stir the resulting solution thoroughly Test the solution with litmus paper
- (b) (i) to about 2cm3 of the solution, add BaCl2 solution followed by HCI (aq)
 (ii) To another 2cm3 portion of the solution, add NaOH (aq) in drops and then in excess. Heat the mixture.
 (iii) To another 2cm3 portion of the solution add K₃ Fe (CN)₆ solution.

	Test	Observation	Inference
(a)	F + distilled water + stirring	F dissolved to form a light green	
		solution	
	F(aq) + litmus paper	Turns blue litmus paper red fly	Solution of F is acidic
(b)(i)	F (aq) + Bacl2 (aq)+	White precipitate () formed	So4-2, So3-2, Co32-, S2-
	HCL(aq)	Precipitate insoluble	so4 ²⁻ present
(ii)	F(aq) + NaOH(aq)in drops	Green (gelalinous Precipilate	Fe2+
	Then in excess +heat	formed	
		Precipitate insoluble in excess.	Fe2+
		Colourless with choking/ pungent	
		irritating small given off. Gas	NH3 _(g) From NH4+
		turned damp red litmus blue/	
		forms white dense fumes with	Fe ³⁺ b from Fe ²⁺
		HCL. Precipitate turned reddish	
		brown	
	F (aq), + K3 Fe (CN)6 (aq)	Deep blue/ colouration formed.	Fe2+ confirmed
		Dark blue / Prussian blue	

The correct presentation of the table could have been thus:

A solid sample is suspected to be either glucose, sucrose or starch. Using only two chemical tests, describe has the solid could be identified.

Most candidates preformed the tests correctly and got the observation and inference correct some however, did not indicate heat in the test with benedicts/ Fehling's solution.

The correct procedures should have been:

To a portion of the sample

- (a) Add fehlings solution/ Benedicts solution/ tallen's reagent and heat. Formation of buck red precipitate indicates the presence of glucose No Visible reaction indicates sucrose / starch.
- (b) To another portion of the sample add few drops of iodine solution. Formation of blue black colouration indicates the presence of starch. No visible reaction indicates glucose/ sucrose.

HEALTH SCIENCE 3

1. GENERAL COMMENTS ON THE PAPER AS WHOLE

The question this year were drawn almost the same as the previous years. There is hardly any ambiguity in any of the questions. They are straight forward and do not create room for super flows meaningless writing for each question. This restriction minimized the usual wrong grammatical and spelling mistakes by most candidates.

However, in terms of performance by candidates this year's performance has been a little better than last years. The highest mark this year is greater than last year. The percentage of candidates that scored higher marks is greater than last years in section A performed more than those that scored good marks in the section B. there is a great reduction in the candidates that scored zero marks this year than last year.

2. <u>CANDIDATES' WEAKNESSES</u>

Generally, weaknesses were still recorded by most of the candidates. These ranges from the inability to label the part of the illustrated diagrams to identification of the diagrams.

Most candidates were not able to label correctly the parts of the diagrams illustrated in the question. Most of them also misspelled the labeling which did not earn them any marks hence the poor performance of most candidates in section A. in section B most of the candidates could not answer the questions and left the spaces provided blank. Besides the numerous blank spaces, most candidates were unable to define given terms or concepts correctly. This reduces the marks they would have gained in those questions.

3. STRENGTHS OF CANDIDATES

The good candidates showed strengths like correct spellings, identification of diagrams illustrated and definitions of terms in some of the questions.

In these candidates, although they do not score the maximum marks in all the questions, but do not leave empty spaces provided. Their expressions, spellings and grammar were very satisfactory. Most candidates in this group scored very satisfactory marks in all the questions they attempted.

Performance of candidates per question.

QUESTION 1

The diagram below is a illustration of the male reproduction system. Study it and answer question 1(a), (b) and (c)



(a) (i) name the parts labeled I,II,III, IV, and VI

(ii) State one function each of the parts labeled IV, V and VI

(b) Mention four veneral diseases that could be associated with the illustrated system.

This question was attempted by most candidates. The performance on this question, on the whole, was satisfactory. The (a) part of the question was for the candidates to labell the parts of the diagram. Most candidates could not spell the words bladder, penis urethra and sperm duct for which they could not score the maximum marks for the question.

Question (a) (ii) was answered satisfactorily as the candidates were able to state the correct functions of the parts. The (b) part was also satisfactorily answered by a good number of candidates

QUESTION 2

The diagram below is an illustration of a pectoral girdle and part of the forelimb in human skeleton. Study it and answer questions 2(a) (i), (ii), (b) and (c)



(a)(i) Name the parts labeled I,II, III, IV, V, and VI
(ii) Name two minerals that could be found in the illustrated structure.
(b) State three possible movements at the joint between the parts labelled
(c) Mention two injuries that could occur to the part labeled I.

Was very popular among the candidates, but most candidates that attempted it could not score the maximum marks for it. The 2(a) (i) was not satisfactorily answered by most candidates as they could not label the parts correctly. The parts that were not correctly labeled were head of humerus, humerus radius, scapular and clavicle. Although some candidates were able to state the correct label the spelling were wrong for which they did not earn any marks. The types of movements in the diagram were wrongly stated by most candidates that attempted the question.

QUESTION 3

The diagram below illustrates organs associated with a system in humans study it and answer question 3(a), (b) and (c)



- (a) Name the parts labeled I,II, III, IV, V, and VI
- (b) State two functions each of the parts labeled II and V.
- (c) List two diseases of the part labeled VI
- (d) Name the substance by secreted by the part labeled III

This question was also popular among the candidates but poorly answered by most candidates that attempted it. The poor performance on this question by most candidates was due to the wrong spellings of the labeling of the parts on the diagram. The correct labeling expected from candidates were:

- (i) diaphragm
- (ii) Stomach
- (iii)- Fancreas
- (iv) Colon
- (v) gall bladder
- (vi) Liver.

The other parts of this of the question were satisfactorily answered by most candidates that attempted them.

QUESTION 4

The diagram below illustrates a vector that lives in an environment. Study it and answer questions 4 (a), (b) and (c)



(a) (i) Name the vector illustrated by the diagram.

(ii) Mention three disease that could be transmitted by the vector.

(b) List three parts on the body of the vector that aids in the transmission of the disease mentioned in (a) (ii).

(c) State three ways of preventing the vector from transmitting diseases to humans.

This was the most popular question among the candidates. Most candidates scored very good marks in this question. Most of them were able to identify the diagram as the house fly although some (very few) identified it as tsetse fly for which they scored no marks. Most of the candidates were able to state the following disease caused by house flies – cholera, dysentery typhoid etc. for which they gained the maximum marks the (c)part of this question was satisfactorily answered by most candidates as they indicated the following.

- ➤ use of fly traps
- ➢ covering of all foods
- > application of insecticides to kill the flies
- Regular cleaning of the environment etc.

QUESTION 5

(a) (i) Outline four reasons for marriage.

- (ii) Mention two types of marriage
- (b) State four characteristics of a happy family

Was also popular among the candidates scored satisfactory marks on this question as they were able to mention reasons like:

- To have children
- For security reasons
- For status in the society
- For the welfare of each other etc.

(c) Part was also satisfactorily answered by most candidates as they were able to state the two types of marriages as follows:

- > polyandry
- ➤ monogamy
- > polygamy etc.

QUESTION 6

- (a) explain the following terms:
- (i) natural acquired immunity;
- (ii) artificial acquired immunity
- (b) Mention four ways of controlling communicable diseases.
- (c) State two functions of the kidney.

Was very unpopular among the candidates, the few that attempted it could not get the maximum marks for the question. The expected answers for natural acquired immunity is that it is a type of immunity that is acquired naturally by the production of anti-bodies that fight against disease causing pathogens when person gets well from the disease those antibodies will always fight any of the same pathogen. Artificial acquired immunity is acquired by the taking of vaccines to prevent diseases.

The (c) part of this question was also satisfactorily answered by most candidates as they mentioned the following ways of controlling communicable diseases

- do not share personal belongings with affected persons
- cover your nose and mouth when coughing
- isolation of infected persons
- Immunization/vaccination etc.

QUESTION 7

- (a) State five signs and symptoms of tuberculosis.
- (b) State five ways of caring for the eye.

Was also attempted by a good number of candidates. The performance of candidates on this question was not very satisfactory. Most candidates could not mention the signs and symptoms of tuberculosis.

The expected signs and symptoms include:

Regular coughing

- Body becomes pale/ anaemic \triangleright
- AAAAA Chest pain
- High fever especially at might's
- Coughing of blood
- Weight loss
- Loss of appetite
- \triangleright Body weakness etc.

The (b) part of the question was also popular among the candidates. However, most candidates could not get the maximum marks for the question because what was expected of them was as follows:

- \geq Avoid reading under direct sun light
- \triangleright Avoid putting sharp objects near the eye
- \triangleright Go for regular eye check ups
- Avoid reading in a moving vehicle
- AAAA Avoid reading in dim light
- Cover the eyes in dusty areas
- Regularly wash your eyes with clean water
- \triangleright Avoid scratching the eyes with dirty hands
- \triangleright Avoid looking at very bright objects.

QUESTION 8

- State five functions of the blood *(a)*
- Mention three ways in which consumer health education is important. **(b)**
- Mention two defects of the eyes. (c)

Was popular among the candidates but the performance was not very encourage. Most candidates were not able to state the five functions of the blood. They were expected to mention functions like:

- \triangleright Blood transports oxygen and carbon dioxide
- \triangleright It regulates body temperature
- ≻ It transports wastes to the excretory organs
- \triangleright It forms blood clot at wounds to prevent blood loss
- \triangleright It transports hormones to area where they are needed
- \triangleright It fight against diseases
- \triangleright It transports food nutrients like glucose amino acids and others etc.

The (b) part of this question was well answered by most candidates as they were able to state the ways in which consumer health education is important as follows:

- It enables consumers to know about fake products \succ
- \geq It helps consumers to remain healthy
- It creates awareness among the purchasers of goods \triangleright
- It help consumers to know about drugs \succ
- \triangleright Enables consumers to check for expiry dates of products etc.

The (c) part of this question was also well written by some of the candidates, although most candidates could not mention the eye defects as follows:

- > Myopia
- Astigmatism
 Hypermetropia
 Presbiopia
- Squint eyes etc.

PHYSICAL HEALTH EDUCATION 2

GENERAL COMMENTS ON THE PAPER AS A WHOLE The standard of the paper was in conformity with the syllabus. The rubrics were clear and straight forward. The questions were simple, direct and straight forward without ambiguity. The paper was well balanced and well spread across the syllabus. There was a choice for candidates, as they were to select two questions out of three Section A and one question from Section B, C, and D.

CANDIDATES' PERFORMANCE

1.

Candidates' performance was satisfactory. There was serious improvement in performance of candidates compared to the previous year. A good number of candidates were able to score 30 marks out 50. This was because all the questions were direct and straight forward. For example – the question drawn were: state, list name. A very big thanks to the examiner that drew the questions. The question did not create any much thinking for the candidates.

2. <u>CANDIDATES' STRENGTHS</u>

Summary of candidates strength include:

- Satisfactory performance in questions 1 and 2 of section A. In question 1 (a) some candidates were able to state more than two characteristics of a sprint race.
- In 1 (b) a good number of candidates were able to state more than two instances in which a team be disqualified in 4x400m relay race.
- In question 2 (b) most candidates were able to outline some duties of the centre referee in a football game.
- Candidates were also able to list all two equipment used by a player during tennis game, hence they scored all the marks in question 3 (a) (i)
- A good number of candidates were able to state more than three ways in which international sports competitions are of importance in question 4 (a)
- As good number of candidates attempted question 6 (a) and (b). Most of them were able to name more than four parts of the labeled diagram. Also a good number of them were able to name all three types of bones in the human body.

3. <u>CANDIDATES' WEAKNESSES</u>

The same weaknesses have been reported year in year out, but the problem of poor performance continues. Some of the weaknesses are highlighted below:

(i) English: The most serious weaknesses continue to be poor use of the English language. This affects the candidates in various ways. Candidates were unable to express themselves correctly. Some candidates made some spelling mistakes. In few cases words written by candidates cannot be identified as English words.

Suggestion: It is suggested that speaking of English in school should be made compulsory. Reading habit should be encouraged in pupils.

- (ii) <u>**Poor handwriting:**</u> In some cases examiner found it very difficult to read candidates scripts/ words because of bad handwriting. Teachers are urged to please encouraged their pupils to take their time when writing. May I suggest that extra marks be given for candidates good hand writing.
- (iii) **Spelling mistakes.** A good number of spelling mistakes were noticed and this caused some candidates to lose some marks. Some candidates were also ill-prepared for the examination hence their below average performance.

4. <u>DETAILED COMMENTS ON INDIVIDUAL QUESTIONS</u>

QUESTION 1

(a)Candidates were asked to state four characteristics of a sprint event/race.

Few candidates were able to state characteristics of a sprint race like to:

- Run at full speed, - starting blocks are used, - it is an individual event, - competitors run in tones, - it is a short distance race etc.

(b): To state fives instances in which a team could be disqualified in 4x400 m relay race.

A good number attempted the question and they were able to state more than two instances like: crossing to other lanes, throwing the baton to the outgoing athlete of the same team, - impeding an opposing athlete, running two laps of the race by an athlete, - passing the baton outside the take - over zone, etc

(c) Candidates were asked to maintain the name of the person who banned the ancient Olympic games.

Very few candidates were able to name the person that banned the ancient Olympic game. This person was Emperor Theodociles I.

QUESTION 2

(a) Candidates were asked to state five instances in which afoal in a volley game.

This question was well answered by a good number of candidates as they were able to advance more than three points like

- Player steps on the baseline when serving;
- Player crosses into opponent's court;
- Ball rests on a player more than a second;.
- Player insults any of the official etc

(b) Candidates were asked to outline five duties of the centre referee in a football (soccer) game.

Here candidates did extremely well. Those that attempted this question were able to outline more than three duties of the centre referee in a football (soccer) game like:

- Conducts the toes for the teams;
- Takes decision on whether to continue or abandon a match;.

- Inspects facility and equipment;
- Caution players when necessary
- Expels player/s when necessary;
- Keeps record of the match, etc

QUESTION 3

(a)(i): Candidates were asked to list two equipment used by a player during tennis game.

Candidates that attempted this question were able to list more than two equipment used by a player during tennis game like: rackets; ball; tennis wear/dress; canvas; etc.

(a)(ii): Candidates were asked to describe how the player that would serve first in a game of tennis is determined.

Very few candidates attempted this question. Even the few that did were unable to correctly describe how the player that serves first in a game of tennis is determined. Here candidates should have simply said by:

- Player to serve first is determined by a toss
- The player that wins the toss may choose to serve first or choose and
- Or request the opponent to make a choice, etc.

(b) Here candidates were asked to state six instances in which a service is considered to be valid in s fame of tennis.

This question was not well answered. As all those that attempted it were unable to state more than two instances a service is considered to be valid in a game of tennis like: - the receiver must be ready; - ball must be tossed by the server; - the server should strike the toss/ball before it drop to the ground; - server should be at the appropriate side of the centre mark, etc.

QUESTION 4

(a) Candidates were asked to state five ways in which international sports competitions are of importance.

All those that attempted this question were able to state more than three ways by which international sports competitions are of importance like to:

- Inculcate the spirit of sportsmanship in participants;
- Encourage sports development;
- Promote social interaction;
- Promote damage of cultural ideals;
- Promote unity and peace, etc.

(b) Candidates were asked to give five factors that could hinder the success of a competition.

Here candidates that attempted this question were unable to give more than three factors like:

 Poor facility; - poor officiating; - lack of adequate fund; - ignorance of the rules and regulations; - inadequate qualified officials; - hooliganism, unsportsmanlike behaviour, etc.

QUESTION 5

(a) Candidates were asked to write the full meaning of the following acronyms associated with the game of football.

Very few candidates answered this question. Even the few that did gave wrong answers. Here candidates should say: the acronyms stand for:

- (i) FIFA: stand fort "International Federation of Association Football/Federation Internationale de Football Association"
- (ii) CAF stand for 'Confederation of African Football'
- (iii) UEFA stand for 'Union of European Football Association'
- (iv) AFC stand for 'Asian Football Confederation'
- (v) WAFU stand for 'West African Football Union'

(b) To state five objectives of National Sports Festivals.

A good number of candidates that attempted this question were unable to state more than three objectives of National Sports Festivals like to:

- Help improve/upgrade sports facilities
- Expose amateur athletes
- To bring all the youths together for common goal/social interaction among youths
- Provide opportunity for better understanding/friendship among
- Help develop sports culture, etc.

QUESTION 6

(a)Candidates were asked to study the diagram below and name the parts labelled I to VIII.

A good number of candidates attempted this question, and were able to name more than five parts such as: (i) pelvic bone/pelvis (ii) femur; (iii) patella (knee cap); (vi) tibia; (v) fibula (vi) Metatarsals; (vii) phalanges and (viii) calcareous/ hell bones.

(b)Candidates were asked to list three types of bones in the human body.

A good number did well, as they were able to name or list all three types of bones in the human body like: (i) long bones, (ii) short bones, (iii) flat bones and (iv) irregular bones.

(c) To state three parts of the large intestine in the human body.

Candidates did not do well in this question. Only very few or one able to state more than the parts of the large intestine in the human bone like: ascending colon, transverse colon, descending colon, appendix – sigmoid colon.

QUESTION 7

(a)(i) To state two conditions of the heart before exercise.

Very few candidates attempted this question and were unable to state conditions of the heart before exercise like – lungs ventilation is normal, - heart beat is normal, - amount of blood pumped in normal, - stroke volume is maintained/normal, – pulse rate is normal.

In (a)(ii): to state two conditions of the heart during exercise.

Few candidates were able to state more than two conditions of the heart during exercise like: - pulse rate increases, - stroke volume increases, - heart beat increases, - amount of blood pumped increases and lungs ventilation increases (diffusion).

In (a)(iii): to state two conditions of the heart after exercise.

Few candidates attempted this question and managed to state one condition of the heart after exercise like: - heart beat returned to normal; - amount of blood produced goes back to normal; - lungs ventilation returns to normal; - stroke volume returns to normal; - pulse rate returns to normal, etc.

In **7(b)** to state two differences between isotonic and isometric muscles contraction in a tabula form

No candidate attempted this question, here candidates should have given the differences between Isotonic and Isometric muscle Contraction – see table below:

ISOTONIC	ISOMETRIC	
It involves shortening and lengthening of	Lengthen of muscle does not change during	
muscles when it contracts and relaxes.	contraction.	
It usually occurs in activities like kicking of	It usually occurs when static force is applied	
objects, lifting heavy weight, boxing, catching,	against immovable/station any objects.	
etc.		
Has shorter contraction and relaxation time	Has longer contraction and relaxation time.	

QUESTION 8

$\overline{(a)}$ Here candidates were asked – what is sports facility?

All those that attempted this question got it wrong. Here candidates should have simply said: sports facility is the permanent structure put in place for sports use.

(b) To maintain three facilities in sports.

This is one of the cheapest questions, which no candidate was able to mention three facilities in sports like: stadia, gymnasia, swimming pools, sports centres, pitches/field/centre for games, etc.

(c) To state three differences between sports facility and equipment, see table below.

Facility	Equipment
Permanent/fixed	Movable
Expensive to put in placer/construct/purchase	Less expensive to purchase/manufacture
Very durable/last longer	Not very durable
Takes time to be constructed	Acquired easily
It can be used with large number of people at a	Equipment is used individually/lesser people
time	
Not easily damaged/ruined	Easily damaged/ruined
Not easy to replace	Easy to replace

Differences between sports facility and equipment

QUESTION 9

(a)Here candidates were asked – what is a league?

Few candidates attempted this question and got it wrong. Here candidates should have given answer like -A league is a type of competition in which many teams play against one another in a group.

(b) State two advantages of a league.

Few candidates were able to give/state one advantage of a league i.e.

- It makes for the best team to win and not by chance
- It permits all participating teams to continue to play to the end of the competition
- It does not require one team waiting for others to complete the round.
- It helps in selecting teams that will represent the country during international competition, etc.

(c) Candidates were asked to state three differences between a league and a knock-out competition

LEAGUE	KNOCK-OUT
It involves continuous play among team	A team is dropping after losing a match
Expensive to organize	Less expensive to organize
Commonly used where there is low/small	Commonly used where there is large number
number of players	of player
Time consuming	Less time consuming
Once defeated there is hope	Once defeated no second chance
Once defeated, the team remains till end of	Once defeated, the team is out of the
competition	competition

See differences between league and knock-out competition

PHYSICAL HEALTH EDUCATION 3

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The standard of the paper was in conformity with the syllabus. The rubrics were clear and straight forward. The questions were simple, direct and straight forward and without ambiguity. The paper was well balanced and well spread across the syllabus. There was a choice for candidates as they were to select few questions out of three form section A and one question from section B, C and D meaning, each candidates was to answer five questions out of nine.

In summary, the standard of the paper was as expected comparing favourably with that of last years.

Candidate's performance: Candidate's performance was satisfactory, especially in question 2, of section A, all the candidates' candidates that attempted this question. A good number were able to stat fully demonstrate the running of a 200 meters race through the phases of the start, take- off, running form, but were unable to finish as fast possible. That besides, most of the candidates did well in question 4 and 5of section B and question 9 of section D. on the whole, the general performance of the candidates this year was on the average.

Comment on any special difficulties that might have affected candidate's performance. In summary examiners could not identify any special difficulties that might have adversely affected candidate's performance. The general opinion of examiners rather was the questions in each section were direct and straight forward without ambiguity.

2. <u>CANDIDATES' WEAKNESSES</u>

- (i) Inability to correctly handle both the table tennis bat and tennis racket in section C question 6+7.
- (ii) Inability to play a drop shot into the opponents' side five times as required.
- (iii) Inability to play tennis games using the back hand drive technique against the wall for 60 seconds continuously.
- (iv) Inability to correctly perform the hand sprang, demonstrating the stance, take –off, execution, landing and recovery.
- (v) In summary, some of the weaknesses of candidates is as a result of lack of P. E. equipment in most schools including games and sport, facilities.

3.<u>CANDIDATE'S STRENGTHS</u>

Satisfactory practical performances of most the candidates that attempted question 2 of section almost all the candidates that attempted it were able to state fully and demonstrate the running of the 200metres, through the correct phases of start, take – off running of the 200 metres, through the correct phases of start, take – off running form and finish on the average.

- (ii) Satisfactory performance of a good number of candidates in the execution of the throw in for a good distance into the football field of question 4 in section B.
- (iii) Satisfactory performance in volley ball of question 5 of section B were all the candidates were able to correctly serve more than few times using the under arm service from the base line of the volley ball court.
- (iv) Satisfactory performance in question 8 of section D in the execution of the astride vault, as they were able to display the phases involve like the approach, hands placement, take – off legs position and satisfactory land form. Some of the ways of improving these qualities includes:
 - (a) Effective and orderly teaching of P.E practical activities in track + field (athletics) events at least once a week in school
 - (b) Effective and orderly teaching of ball games regularly
 - (c) Regular and effective teaching of bato and racket games.

In summary Physical Education teacher are encouraged to put emphasis on the practical aspects. That beside, Physical education teacher are regularly conduct practical test/ examination at the end of every term similar to the school WASSCE. Noting that P.E is a practical oriented course.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

SECTION A - TRACK + FIELD (ATHLETICS)

QUESTION 1

Candidates were asked to throw a javelin covering a good distance paying attention to the grip, run- up release and recovery. A good number of the candidates were unable to have a good grip of the javelin unsatisfactory run-up was demonstrated, poor release and recovery was also displayed.

QUESTION 2

In 2 candidates were asked to stet fully demonstrate the running of the 200metres race through the phases of the start, take- off running from and finish returning a good time. All the candidates satisfactorily attempted this question; as they were able to display some amount of dexterity in the start, take –off, good running form, even though some were unable to finish to return good time.

QUESTION 3

In candidates were asked to demonstrate the take- off, running form and finish to return a good time in a 100 metres race. No candidates attempted this question. Here candidates should have demonstrated the on your marks portion, set position and take –off display of good running form between the hurdles and finish the event with good timing.

SECTION B - BALL GAMES

QUESTION 4

Here the question read thus: form the marked spot on the side line of a football field. Candidates were asked to execute a throw –in for a good distance into the field. A good

number of the candidates were able to satisfactorily execute a throw in face reasonable distance into the football field from the marked spot on the side line of the soccer pitch.

QUESTION 5

In this question, candidates were asked to serve a ball to the opponent's court five time from the base line of a volley ball court, using the under arm service. A good number performed well in this question, as they were able to serve the ball to the opposite court more than two times from the base line of the valley ball court.

SECTION C - RACKET GAMES

QUESTION 6

In 6 from the end of the table tennis table bounce the table tennis ball such that you play a drop shot into the opponents side five times. Very few candidates attempted this question even the few that did performed unsatisfactorily, as they were unable to correctly bounce the table tennis ball such that they can play a drop shot into the opponents' side five times.

QUESTION 7

In 6 candidates were to play backhand drive against the wall for 60 seconds continuously in a game of tennis. Few candidates attempted this question. Even the few that did, were unable to correctly play back hand and drone against the wall for 60 seconds continuously in a game of tennis.

QUESTION 8

There candidates were asked to perform the astride vault displaying the skills involved in the phases of approach, hands placement take –off legs position and landing. All the candidates nationwide/ in the schools attempted. This question satisfactorily. They were able to display the skills involved in the phases of approach, hands placement take –off, legs position and landing.

QUESTION 9

In 9, candidates were asked to demonstrate the stance position, take –off execution very few candidates attempted this question, and were unable to correctly demonstrate the stance, take –off execution landing and recovery phases.

PHYSICS 2

1. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

The questions were within the examination syllabus by WAEC and we could agree with the standard of the questions. However, although all questions within a section or part carry equal marks, it is difficult to agree that all of the questions were of the same standard and weight. In Part I, some questions are asking just to name or state, while other questions in the same section are sub-divided into two parts, the one part asking to define and the other part asking to solve an application problem. For this reason one could say that the weighting, particularly in Part I, was not uniform. However, there was a fair coverage of the examination syllabus, the language used was quite explicit and direct.

The Part II of the paper was much more uniform in terms of the weighting. It was balanced with questions set on recall, comprehension, applications etc.

The performance of the candidates was better in the Part II than in Part I. the reason may be that the questions in Part I are set from the harmonized section of the syllabus, which many schools do not consider as important as the rest of the syllabus or they think it is simple, so it can be treated at the end.

2. <u>CANDIDATES' STRENGTHS</u>

The strength of the candidates was demonstrated in the following;

- Knowledge of units for respective quantities;
- Use of correct formulae for physical quantities;
- Performance of mathematical operations;
- Knowledge of appropriate formular for different effects and reactions;
- Some indication of fundamental principles of Physics in a particular topic.

3. <u>CANDIDATES' WEAKNESSES</u>

There are some general weaknesses which occur over and over again. Many candidates write their final quantities without units, even where necessary. Some candidates fail to convert the units into S.I units. For example, to leave the answer in centimetres, instead of converting to metre.

Some candidates spend a lot of time in mathematical manipulations without clearly identifying the physics involved in solving the problem.

- Some candidates could not attempt the required number of questions on the paper. Some of the questions attempted could not be answered completely. This may be an indication of the fact that the examination syllabus was poorly covered.
- Some candidates wrote with simple spelling mistakes and poor grammar.

My recommendation is that English and Mathematics be taken very important, so that candidates can write correct English with less mistakes in spellings and grammar.

Candidates should have a fair coverage of the syllabus so that they can attempt a good number of questions on the paper.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(a) Define stress.

Answer

The ambiguity in this question is that the strain was not specified. It could be tensile, shear or bulk strain. It was however assumed to be tensile strain, in which case the definition would have been the ratio of the extension to original length. However, the definition is given generally as the relative distortion/change in shape/size of an object due to applied force.

(b) A rubber band is stretched to twice its original length. Calculate the strain in the rubber band.

tensile strain = $\frac{extension}{original \, length} = \frac{e}{l_0} = \frac{2l_0 - l_0}{l_o} = \frac{l_0(2-1)}{l_0} = 1$

QUESTION 2

State three materials used for making optical fibres.

Answer

This is one of the confused questions. The materials have scientific and commercial or common names. Some candidates stated the scientific names while others stated the common or commercial names. The marking scheme attempted to state the following: glass, silicon dioxide, poly-carbonate, Teflon sheath, silica, sapphire etc. Any correct three could be the answer.

QUESTION 3

Name three classes of magnetic materials.

Answer

This was simple and straight forward, just to recall. The three classes are: <u>Diamagnetic</u>, <u>Paramagnetic</u> and <u>Ferromagnetic</u>.

Some candidates named the substances in the classes rather than the classes e.g. iron, fur ferromagnetic, platinum or aluminium for paramagnetic and so on.

Another point about this question is that, *do we have more than three classes of magneticmaterials*? If there are exactly three, then the correct way of asking this question would have been: *Name the three classes of magnetic materials*.

Many candidates could not spell the class properly.
QUESTION 4

(a) What is an Intrinsic Semiconductor?

<u>Answer</u>

An intrinsic semi-conductor is a pure semi-conductor which contains equal number free electrons and holes.

(b) Distinguish between the p-type and n-type semiconductors.

Any pair of the following could distinguish between p-type and n-type semiconductor:

p-type semi-conductor has holes as the majority of electricity carriers whilst the n-type semi-conductor has electrons as the majority carriers of electricity. P-type carries a net positive charge while the n-type carries a net negative charge.

QUESTION 5

A missile is projected so as to attain its maximum range. Calculate the maximum height attained if the initial velocity of projection is $200ms^{-2}$. $(g = 10ms^{-2})$

Answer

According to theory, the maximum range is when the angle of projection is 45°. Therefore in the formular for maximum height:

$$= \frac{u^{2} \sin^{2} \theta}{2g}$$

$$\theta = 450$$

$$u = 200ms^{-1}$$

$$g = 10ms^{-2}$$

$$H = \frac{200^2 \sin^2 45}{2 \times 10}$$

Η

= 999.98 = 1000.0 *m*

QUESTION 6

A blackbody radiates maximum energy when its surface temperature T and corresponding wavelength λ_{max} are related by the equation: $\lambda_{max}T = constant$.

Given the values of the constant and surface temperature as $2.9 \times 10^{-3} mK$ and $57^{\circ}C$ respectively, calculate the frequency of the energy spectrum.

Answer

It is difficult to accept that this problem could go for only three marks.

We have to find the value of maximum wavelength λ_{max} and then the frequency of the energy spectrum. It must also be assumed that the energy radiated by a black body is in the electromagnetic spectrum, and therefore travels with the speed of light i.e. $3.0 \times 10^8 ms^{-1}$:

First find the wavelength $\lambda_m = \frac{cons \tan t}{T} = \frac{2.9 \times 10^{-3}}{330}$

 $\lambda_m = 8.8 \times 10^{-6} m$

Now using the formula $v = f\lambda$, calculate the frequency *f*, assuming that $v = 3.0 \times 10^8 m s^{-1}$ (This assumption was expected to be done by the candidate).

$$v = f\lambda$$

$$f = \frac{v}{\lambda} = \frac{3.0 \times 10^8}{8.8 \times 10^{-6}} = 3.4 \times 10^{13} Hz$$

QUESTION 7

(a) What does the acronym LASER stand for?

Answer

The acronym LASER stand for: Light Amplification by Stimulated Emission of Radiation

(b) What is a laser?

Laser is a device that generates an intense beam of coherent monochromatic light.

Although this question appears simple, many candidates missed the marks because they could not spell properly. Some used the word 'for' instead of 'by'. Some candidates gave the uses of laser, instead of saying what laser is.

QUESTION 8

- (a) Define uniform acceleration.
- (b) Forces act on a car in motion. List the:
 - (i) horizontal forces and their directions;
 - (ii) vertical forces and their directions.
- (c) A car starts from rest and accelerates uniformly for 20 s to attain a speed of 25ms⁻¹. It maintains this speed for 30 s before decelerating uniformly to rest. The total time for the journey is 60 s.
 - (i) Sketch a velocity-time graph for the motion;
 - (ii) Use the graph to determine the:
 - (a) total distance travelled by the car;
 - (β) deceleration of the car.





The figure above illustrates force – extension graph for stretched spiral spring. Determine the work done on the spring.

Answer

This question is from the mechanics part of the syllabus. Apart from (a) which is recall, (b), (c) and (d) are all application.

- (a) <u>Uniform acceleration</u>: When the velocity of a moving body increases by equal amounts in equal intervals of time; i.e. the constant time rate of increase in velocity.
- (b) When a car is in motion, a number of forces come into play.
 - (i) Horizontal forces
 - Thrust force from the engine which moves the car forward.
 - Frictional force which is directed backward.
 - Air resistance directed backwards.
 - (ii) Vertical forces
 - The weight of the car directed downwards.
 - Normal reaction of the ground to the car, directed upwards.

(c) (i) The velocity-time graph for the motion.



- (ii) From the graph :
 - (α) Total distance travelled = Area under the graph = $\frac{1}{2}(60+30) \times 25$ = 1125 m

(
$$\beta$$
) Deceleration = $\frac{\Delta v}{\Delta t} = \frac{25}{10} = 2.5 m s^{-2}$

(d) Work done on the spring = area under the graph.

 $= \frac{1}{2} x$ base x height

$$= \frac{1}{2} \times 0.5 \times 10^{-2} \times 12$$
$$= 3 \times 10^{-2} J$$

Some candidates ignored the graph given, and they decided to solve the problem based on Hook's law, but they could not end it because force constant is not given.

QUESTION 9

- (a) List two factors each that affect heat loss by:
 - (i) radiation;
 - (ii) convection.
- (b) State two factors that determine the quantity of heat in a body.
- (c) Explain the statement: 'The specific latent heat of vaporization of mercury is $2.72 \times 10^5 Jkg^{-1}$.'
- (d) A jug of heat capacity $250JK^{-1}$ contains water at $28^{\circ}C$. An electric heater of resistance 35Ω connected to a 220 V source is used to raise the temperature of the water until it boils at $100^{\circ}C$ in 4 minutes. After another 5 minutes, 300 g of the water has evaporated. Assuming no heat is lost to the surroundings, calculate the :
 - (i) mass of water in the jug before heating;
 - (ii) specific latent heat of vaporization of steam; (Specific heat capacity of water = $4200Jkg^{-1}K^{-1}$)

Answer

Radiation and convection are two different mechanisms by which heat is lost by a body. In each mechanism, there are factors of the body which affect the amount of heat loss. By:

- (a) (i) Radiation
 - Factors: Surface area the more the surface area, the more the heat loss.
 - Temperature is directly proportional to the rate of heat loss.
 - Nature of the surface depending on whether the surface is rough or smooth. Dark or bright in colour etc.

(ii) Convection Factors:

- Nature or type of liquid

- Density or viscosity of the liquid
- Specific heat capacity of liquid
- (b) Factors that determine the quantity of heat in a body are:
- mass of the body
- heat/thermal capacity
- temperature
- specific heat capacity

All of these factors are directly proportional to the amount of heat energy possessed by a body.

- (c) This question is asking for an interpretation of a definition. It means that
- $2.72 \times 10^5 J$ of heat energy is required to change 1 kg of mercury to vapour, at its boiling point.
- (d) (i) To solve this problem, we need the equation of heat exchange: Heat supplied by heater = heat gained by water + heat gain by jug Heat gain by jug is equal to the heat capacity of jug C, multiplied by change in temperature.

$$\therefore \frac{v^2 t}{R} = m_w c_w (\theta_2 - \theta_1) + C_J (\theta_2 - \theta_1)$$

Where v = 220 volts, t = 4 mins = 4 x 60 secs.

 C_w = specific heat capacity of water = $4200Jkg^{-1}k^{-1}$

 C_j = heat capacity of the jug = $250Jk^{-1}$

$$\therefore \frac{220^2 \times 4 \times 60}{35} = m_w \times 4200(100 - 28) + 250(100 - 28)$$
$$m_w = 1.038kg$$

(ii) For the next 5 mins, the heat supplied by the heater was used to evaporate 300g of water.

$$\therefore \frac{v^2 t}{R} = m l_v$$

$$l_v = \frac{220^2 \times 5 \times 60}{35 \times 0.3}$$

$$= 1.382857 \times 10^6$$

$$= 1.38 \times 10^6 J k g^{-1}$$

QUESTION 10

(a) Define diffraction.

(b) (i) Explain critical angle.



- (ii) The diagram above illustrates a ray of light passing through a rectangular transparent plastic block.
 - (a) Determine the value of the critical angle.
 - (β) Calculate the refractive index of the block.
- (c) A pipe closed at one end has fundamental frequency of 200 Hz. The frequency of the first overtone of the closed pipe is equal to the frequency of the first overtone of an open pipe. Calculate the:
 - (i) fundamental frequency of the open pipe;
 - (ii) length of the closed pipe;
 - (iii) length of the open pipe. [Speed of sound in air = $330ms^{-1}$]

Answer

This question suffers two errors: i) on the diagram, the ray is not arrowed; ii) question (II) (β) was written as 'Determine the value of the value angle.'

- (a) Diffraction is the bending or spreading of a wave round an obstacle or as it passes through an aperture.
- (b) (i) Critical angle is the angle of incidence in the denser medium for which the angle of refraction in the less dense medium is 90°.

OR

It is the minimum angle of incidence above which a ray passing from a denser medium to a less dense medium will be totally internally reflected.

(ii) (a) Critical angle =
$$90^{\circ} - 44^{\circ} = 46^{\circ}$$

(b) $n = \frac{1}{\sin c} = \frac{1}{\sin 46^{\circ}} = 1.39$

(c) (i) For closed pipe, the first overtone is
$$3f_o$$
 where $f_o = 200Hz$

$$\therefore 1^{\text{st}} \text{ overtone} = 3f_a = 3 \times 200 = 600 Hz$$

In open pipe, all harmonics are possible therefore the 1^{st} overtone = 2f = 600

$$f_o = \frac{600}{2} = 300 Hz$$

(ii) Length of the closed pipe

$$f = \frac{3v}{4l}$$
 $l = \frac{3v}{4 \times f} = \frac{3 \times 330}{4 \times 200} = 0.412m$

(iii) Length of open pipe

$$f_1 = \frac{v}{l}$$

$$600 = \frac{300}{l}$$

l = 0.55m

QUESTION 11

(a) **Define:**

- (i) resistance;
- (ii) impedance;
- in an a.c circuit.

(b)



The diagram above illustrates an a.c generator. When the coil is rotated, an *e.m.f* is induced in the coil.

- (i) Explain why an e.m.f is induced.
- (ii) State the purpose of the slip-rings.
- (iii) Name and state the law used to determine the direction of the induced current.
- (iv) State two ways to increase the induced e.m.f.

(c) A lamp is rated 12 V, 6 W. Calculate the amount of energy transformed by the lamp in 5 minutes.

Answer

- (a) (i) Resistance is the opposition to the flow of a.c by the resistive component.
 - (ii) Impedance is the overall opposition offered to an a.c in an R L, R C, or R L C circuit.

OR

It is the combined opposition to an a.c by both reactive and resistive components.

- (b) (i) E.m.f is induced whenever the coil cuts the magnetic flux/magnetic lines of force.
 - (ii) The slip-rings are there to ensure that the direction of current is reversed in each half of the rotation of the coil.
 - (iii) The name of the law is Lenz's law. It states that eh direction of the induce current is such as to oppose the change producing it.
 - (iv) The induced e.m.f can be increased by any of the following:
 - increased speed of rotation
 - increased number of turns in the coil
 - increased area/diameter of the coil
 - efficient core design

(c) Energy = power x time = 6×5 mins x 60 secs = 800 J

QUESTION 12

- (a) Define binding energy in an atom.
- (b) List three evidence to support the claim that X rays are electromagnetic waves.
- (c) List three peaceful uses of nuclear energy.
- (d) Light of wavelength 4.5×10^{-7} m is incident on a metal resulting in the emission of photoelectrons. If the work function of the metal is $3.0 \times 10^{-19} J$, calculate the:
 - (i) frequency of the incident light;
 - (ii) energy of the incident light;
 - (iii) energy of the photoelectrons.

[Speed of light = $3.0 \times 10^8 m s^{-1}$, $h = 6.6 \times 10^{-34} J s$]

Answer

- (a) Binding energy is the minimum work/energy required to separate the nucleons of an atom.
- (b) Some of the required evidences are:
 - They are not affected by electric/magnetic field.
 - They can travel through a vacuum.
 - They can be polarized.
 - They cause fluorescence.
- (c) The following are some of the peaceful uses. Nuclear energy is used
 - to generate electricity;
 - in the treatment of tumour;
 - to power submarines and rockets;
 - in food irradiation.

$$c = f\lambda$$

$$f = \frac{c}{\lambda} = \frac{3.0 \times 10^8}{4.5 \times 10^{-7}} = 6.67 \times 10^{14} Hz$$

(ii) Energy of the incident light

$$E = hf$$

6.6×10⁻³⁴×6.67×10¹⁴
4.4×10⁻¹⁹ J

(iii) Energy of the photo electron

$$= 4.4 \times 10^{-19} - 3.0 \times 10^{-19}$$
$$= 1.4 \times 10^{19} J$$

 $K.E = E - w_o$

PHYSICS 3

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The standard of the papers (alternative A and B) compared favourably with that of last year May/June 2017.

The general performance of candidate's comparison with those of previous years was better.

2. <u>CANDIDATES' STRENGTHS</u>

Most candidates answered the two questions required. A few candidates wrote reasonably good English and well throughout answers (acceptable language in stated precautions). They presented their results in a composite table. Incidence of matching points on the graphs won c was minimal. This needs to be encouraged.

3. CANDIDATES' WEAKNESSES

The summary of the observed weaknesses are as follows:

- (1) There are few teachers that could effectively teach physics practical's.
- (2) Principals do not tend to encourage or motivated the physics teachers.
- (3) No practical exercises done as a follow- up to the theoretical learning

SUGGESTED REMEDIES

- (i) Physics teachers need to be trained for the teaching of practical's.
- (ii) Teachers need to be highly motivated in the form of special allowances.
- (iii) The availability of physics practical text books in school libraries and apparatus.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

ALTERNATIVE A

QUESTION 1

You are provided with a pendulum bob, a metre rule, a stop watch, a retort stand with clamp and other necessary apparatus.

(i) Suspend the pendulum bob from the clamp as illustrated in the diagram.

(ii) Adjust the pendulum such that AC = 90 cm

(iii)Displace the pendulum bob slightly, such that it oscillates in a vertical plan.

(iv) Measure and record the time T for 20 complete oscillation

(v) Evaluate T and \sqrt{L}

(vi) Repeat the procedure for four other values of L= 80 cm, 70cm, 60cm and 50cm.

- (vii) Tabulate your results
- (viii) Plot a graph with log T on the vertical axis and \sqrt{L} on the horizontal axis (ix)Determine the slope, s, of the 3 graph
- (x) Evaluate $g = \frac{4 \pi 2}{S^2}$

(xi) State two precautions taken to ensure accurate results.

(b) (i) determine from your graph the period of the pendulum for L = 75cm

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- the set- up and indicate on it, the position of
 - (α) Maximum velocity;
 - (β) Maximum acceleration of the bob.

Observations

(iii)

This was a straight forward question on simple pendulum. Most candidates were able to measure and recorded the length (L) and time (t) for 20 complete oscillations at least 1 d.p in (cm) and (s) respectively, evaluated the period (T) log T and \sqrt{L} to three (3) decimal places. Majority of the candidates presented a composite table showing at least L, T, T, log T and \sqrt{L}

Graph

Most candidates correctly distinguished the axes, choice of reasonable scales and plotted their five (5) points. The line of best fit drawn was wrong in most case.

Slope

Most triangles drawn were small but were right – angled. The determination $\Delta \log T$ and $\Delta \sqrt{L}$ was correct and $\Delta \log T$ correctly evaluated

 $\Delta \sqrt{L}$

Evaluation

Candidates were required to evaluation $g=4\pi 2$, where S is the slope of the graph. Most candidates are referred their text books when dealing with such concepts.

Precautions

Precautions stated were not in acceptable language. The following are good examples.

- ➢ I avoided parallax error on metre rule
- I avoided cancel oscillation
- ➢ I avoided draught

Short – answer questions

Candidates' performance was very poor here.

- (i) Candidates were required to correctly trace log T from L=75cm and then correctly evaluate T
- (ii) Candidates are referred to their text books for a diagram illustrating how a simple pendulum is set –up into simple harmonic motion may be used to show the positions of (\propto) maximum velocity and (β) maximum acceleration of the bob. Diagrams

Maximum aximum acceleration Acceleration maximum Velocity

QUESTION 2

You are provided with a metre rule, lens screen, ray box and other necessary apparatus.

- (i) Set up the experiment as shown in the diagram. Measure and record the diameter up the experiment as shown in the diagram. Measure and record the diameter $a_o of$ the illuminated object.
- (ii) Place the object at a distance X = 25cm from the lens. Adjust the screen until a sharp image is obtained on the screen.
- (iii) Measure and record the diameter, a, of the image.
- (iv) Measure and record the distance, v, between the lens and the screen.
- (v)Evaluate $y = \underline{a}$, $p = \underline{1 + y^2}$ and T = X + V

v

$$a_o$$

- (vi) Repeat the procedure x= 30cm, 35 cm, 40cm. in each case, determine the corresponding values of a, v, y, p and T.
- (vii) Tabulate your results
- (viii) Plot a graph of p on the vertical axis against T on the horizontal axis starting both axis from origin. (0, 0).
- (*ix*) Slope, s, of the graph
- (x) Determine intercept, c, on the horizontal axis.
- (xi) Evaluate K = c/2.

(xii) State two precautions taken to ensure accurate results.

(b) (i) explain the statement, the focal length of a converging less is 20cm.

(II) an object is placed at a distance x from a converging lens of focal length 20cm. if the magnification of the real image formed by the lens is 5, calculate the value of x.

Observations

The performance of candidates in this question was encouraging. Majority of candidates measured and recorded the values of a0, a, x and V at least 1 d.p cm. the values of $y = \underline{a}$, p = 1 + y2 and

T = x + v were

Ao y

Correctly evaluated in most cases.

Composite table showing at least x, v, y, p and T were presented.

Graph

Both axes were correctly distinguished scales reasonable. The five (5) point's plots were fairly accurate in many cases. The line of best fit was poorly drawn in most case.

Slope(s)

The right – angled triangles drawn in in many cases small. ΔP and Δt were correctly determined and ΔP

 ΔT

Correctly evaluated

Precautions

Most candidates stated the precautions acceptable language in this question. I removed the key when not taking readings.

I ensured tight connections/ clean terminals

I avoided parallax error when taking readings on ammeter/ metre rule.

Short-answer questions

- (i) Candidates correctly shown I-1 on the graph and correctly read and recorded the corresponding value of D at least 1 decimal place.
- (ii) Majority of the candidates were able to stated two factors which affect the resistance of wire.
- (iii)Length of wire
- (iv)Cross sectional are
- (v) Resistivity/nature of wire
- (vi)Temperature

QUESTION 3

You are provided with an ammeter, resistor, key, metre bridge and other necessary apparatus.

(i) Connect a circuit as shown in the diagram above

(ii) Close the key and use the jockey to make contact with AB at N such that AN = D = 25 cm.

- (iii) Read and record the ammeter read the ammeter reading I.
- (iv) Evaluate I -1
- (v) Repeat the procedure for values of D = 35cm, 50 cm, 65cm and 80cm. in each case record I and determine I⁻¹
- (vi) Tabulate your results.
- (vii) Plot a graph with I-1 on the vertical axis and D on the horizontal axis
- (viii) Determine the slope, S, of the graph.
- (ix) State two precautions taken to ensure accurate results.
- (b) (i) use your graph to determine the value of d when I = 1.5 A.

(ii) State two factors which affect the resistance of a wire.

Observations

The general performance of candidates in question 3 was quite good. Most candidate correctly measured and recorded the five values of d and I at least 1d.p in cm. and (A) respectively. The values of I -1 were correctly evaluated at least 3 d.p in most cases. Candidates presented a composite table showing at least d, I and I $^{-1}$.

Graph

Most candidates correctly distinguished both axes starting from the origin (o, O). The choice of scales was good and the points were correctly plotted. The line of best fit drawn was accurate in many cases.

Slope

The right – angled triangles were large. Candidates correctly determined ΔI -1 and Δd and correctly evaluated ΔI^{-1}

Intercept(c)

The intercept (c) on the horizontal axis was correctly shown but not correctly recorded by many candidates.

Evaluation

The substitution and arithmetic using K = c/2, where C is the intercept on the horizontal axis of the graph Were correct in many cases.

Accuracy

This was based on K = supervisor's value of focal length +10%.

Precautions

Most of the statements were in unacceptable language. Here are some good examples I avoided zero error on metre rule. I avoided parallax error in reading metre rule I ensured the lens kept up right.

Short – answer questions

(b)(i) Candidates are referred to their tent books for the definition of the focal length of the converging lens is 20cm.

The distance between the optical centre and the principal focus of the lens is 20cm

Or

If parallel beam of light is incident or the lens, it is brought to a focus at a point 20cm from the lens.

(v) Most candidates correctly solved the problem that required the distance X of the object of a converging lens.

1 + 1 = 1	$\underline{1} + \underline{1} = \underline{1}$
X v f	x v f
$1 + \underline{\mathbf{x}} = \underline{\mathbf{x}}$	$m = \underline{v}$
V f	Х
$1 + \underline{1} = \underline{\mathbf{x}}$	$S = \underline{v}$
M f	Х
X = f(1 + 1)	V = 5X
Μ	1 + 1 = 1
X = 20(1+1)	x 5x 20
5	
X = 24	6 = 1
	5x = 20
	X = 24 cm

ALTERNATIVE B



You are provided with a set of masses M, a metre rule, a knife edge and other necessary apparatus.

- (i) Balance the metre rule on the Knife edge and determine the centre of gravity G
- (ii) Suspend the mass M=50g at the points A=5cm mark of the metre rule and balance the whole arrangement on the knife edge.
- (iii) Read and record the balance point K and determine the distance X between A and K.
- (iv) Evaluate 1/x.
- (v) Repeat the procedure with masses M= 70g, 110g, 130g and 150g in each case, read K and determine X and 1/x.
- (vi) Tabulate your results.
- (vii) Plot a graph with M on the vertical axis and 1/x on the horizontal axis starting both axes from the origin (0, 0).
- (viii) Determine the slope, s, of the graph.
- (ix) From your grapth, read and record the value of M when 1/x = 0.
- (x) State two precautions taken to obtain accurate results.
- (b) (i) define moment of a force about a point.

(ii) Two parallel and opposite forces of 20N each act on a body. If the perpendicular distance between the forces is 0.5 m. calculate the magnitude of the moment of the couple.

Observations

Candidates performed well in this question. Most candidates did not measured and recorded the value of K. summarized their results in a composite table showing at least M, K, X and 1/x.

Graph

The graph was correctly drawn with labels and reasonable scales provided for both axes. The line of best fit was well drawn in most cases.

Slope

The slope (s) was correctly determined using a large-right angled triangle.

Deduction:

Candidates correctly shown when 1/x = 0 and the value of m correctly determined.

Accuracy

This was based on M= supervisor's value of the mass of the metre rule supplied

 $\frac{\text{Slope}}{\text{Intercept on M- axis}} = 45 \pm 2 \text{cm}$

Precautions

As in previous questions in alternative the precautions were stated in unacceptable language. Good examples

I avoided draught

I ensured mass did not rest on / touch the table.

Short- Answer Questions

(b) (i) the definition of moment of a force about a point was quite correct in many cases. Moment of a force about a point is the product of the force and the perpendicular distance of its line of action from the point.

(ii) Relatively few candidates correctly solve the problem that required the magnitude of the moment of the couple given two parallel and opposite forces of 20N each act on a body. If the perpendicular distance between the forces is 0.5m.

I.e. moment of a couple = one force X perpendicular distance between the forces

 $= 20 \ge 0.5$

= 10 NM

QUESTION 2



You are provided with plane mirror, drawing board, plain sheets, optical pins and other necessary apparatus

Use the diagram above as a guide to perform the experiment

- (i) Fix the drawing paper to the perform the experiment.
- (ii) Place the mirror vertically with its longer side resting on the drawing paper Draw a straight line AB to represent the reflecting surface of the mirror remove the mirror.
- (iii) Draw a normal NQ to meet AB at its midpoint Q
- (iv) Draw a straight line ST through A, to meet AB at right angles
- (v) Measure a distance AC = x = 1.5 cm.
- (vi) Draw a line CQ to represent an incident ray. Place two pins P_1 and P_2 on CQ.
- (vii) Replace the mirror on AB
- (viii) Place two other pins, P_3 and P_4 to be on a straight line the images P_1 , P_2
- (ix) Remove the mirror and the pins.
- (x) Draw a straight line through the position P3 and P4 to meet AB at Q
- (xi) Measure and record angled ACQ as $\theta 1$ and angle CQA as $\theta 2$.

- (xii) Evaluate x^{-1} and tan $\theta 2$
- (xiii) Repeat the procedure for four other values of X = 2.5 cm, 3.5 cm, 4.5 cm and 6.0 cm.
- (xiv) Tabulate your results.
- (xv) Plot a graph with $\tan \theta 2$ on the vertical axis and x-1 on the horizontal axis
- (xvi) Determine in slope, s, of the graph.
- (xvii) State two precautions taken to obtain accurate results (Attach your traces to your answer booklet.)

Observations

Few candidates attempted this question most candidates did not attempted traced and results were correctly tabular\ted showing at least x, Q_1 , Q_2 , X^{-1} and tan Q^2 .

Graph

Candidates correctly distinguished and reasonable scales both and the points was correctly plotted. The line of best fit was wrong in many cases.

Slope

Most of the triangles drawn by candidates were small right angled $\Delta \tan Q2$ and $\Delta x - 1$ were correctly determined and $\Delta \tan Q_2$ was wrongly evaluated.

 Δx^{-1}

Precautions

Most precautions were stated in un acceptable language. Good examples are as follows: I ensured optical pins were vertical/upright/erect.

I avoided parallel error in reading protractor/ metre rule

I corrected zero error on metre rule.

Short – answer questions:

- (i) Majority of the candidates did well in distinguished between regular and diffused reflections.
- (ii) Regular reflection occurs when light falls on a smooth (glass) surface while diffused reflection occurs when light falls on a rough surface.
 In regular reflection incident parallel rays are parallel after reflection while in diffuse reflection incident parallel rays are scattered AFTER REFLECTION.
 - (b) Regular reflection

Diffuse reflection



(ii) Distance of image from object = 25 + 25 = 50 cm. Object size = image size



You are provided with an ammeter, resistance box, key and other necessary apparatus.

- (i) Connect a circuit as shown in the diagram above.
- (ii) Select the value of $R = 1\Omega$ from the resistance box and record the current I of the ammeter.
- (iii) Evaluate I^{-1} .
- (iv) Repeat the procedure for four other values of $R = 2\Omega$, 4Ω , 5Ω and 7Ω . In each case, record the value of I and determine I^{-1} .
- (v) Tabulate your results.
- (vi) Plot a graph with I-1 on the vertical axis and R on the horizontal axis.
- (vii) Determine the slope, s, of the graph and the intercept, on the I-1 axis
- (viii) Evaluate c/s.
- (ix) State two precautions taken to ensure accurate results.

(b)(i) Use your graph to determine the value of I when $R = 10\Omega$.

(ii) State two differences between a shunt and multiplier.

Observations

As in previous question 3 (alternative A) majority of the candidates correctly measured and recorded the values of R and I at least 1 dap in 0 tims (Ω) and ampere (a) respectively. The values of I⁻¹ were correctly evaluated at least 3 d.p and presented a composite table showing at least R, I and I⁻¹

Graph

Most candidates correctly distinguished the axes and the choice of reasonable scales starting from the origin (0, 0). The points plotted and line of best lit were accurate in many cases.

Slope

Majority of the candidates drawn large right- angled triangle. ΔI^{-1} and ΔR were correctly determined and ΔI^{-1} correctly evaluated.

 Δ

Intercept (c)

In most scripts, the intercept on the I-1 axis was correctly shown and read.

Evaluation

Candidates were required to evaluate c/s, where C = intercept and S = slope Most candidates evaluated this correctly both substitution and arithmetic were correct.

Precautions

Most candidates, the precaution were stated in acceptable language. The following are good examples.

I ensured the key opened when reading were not taken. I ensured clean terminals/ light connections

Short- Answer Questions

About 80% of the candidates were unable to answer the questions b (i) and b (ii)

- (i) The corresponding value of I-1 when $R = 10\Omega$ correctly shown on graph but wrongly evaluated.
- (ii) Difference between

Shunt		Multiplier
\checkmark	Connected parallel to / across the	Connected in series with a millianmeter
	millianmeter	
\checkmark	Has low resistance	Has high resistance
\checkmark	Converts millianmeter to an	Converts millianmeter
	ammeter	

SCIENCE CORE 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

This year paper retained its high standard and adequacy in terms of quality as compared with previous years.

The questions were clear, suitable and commensurate with the level of the candidates and were within the contents of the syllabus. The questions were straight forward and they were clearly stated. The marking scheme was detailed and flexible.

However, candidate s' performance fell far below expectation.

2. <u>CANDIDATES' STRENGTH</u>

Candidates showed remarkable

- Improvements in the following areas:
- Definition of some science terms
- Organic chemistry
- Adherence to rubrics

3. <u>CANDIDATES' WEAKNESSES AND SUGGESTED REMEDIES</u>

- inability to properly interpret the questions
- poor spelling of technical terms
- poor communication skills
- shallow knowledge of the subject matter
- poor grasp of the concept of genetics
- poor handwritings making their work illegible
- inadequate preparation for the examination
- non-familiarity with prescribed syllabus
- responded poorly to questions that demanded definitions, explanations and comparisons.

Candidates can overcome these weaknesses by

- familiarizing themselves with the requirements of the prescribed syllabus
- adhering to
- Writing legibly
- Genetics should be taught with teaching and moduls
- Improving on their communication skills such that answers to questions are correctly given during the appropriate technical language
- Preparing adequately for examination
- Qualified teachers should be employed to impart the requisite knowledge

4. DETAILED COMMENTS ON INDIVIDUAL QUESTION

QUESTION 1

(a) Name two gaseous pollutants in air

This question was attempted by majority of the candidates though compulsory and the performance was good.

In (a) some candidates refused to understand the questions asking for gaseous pollutants and went ahead to mention about smoke insecticides, sprays which are no chemical formula accepted

- carbon monoxide/carbon (II) oxide
- carbondioxide/carbon (IV) oxide
- sulphurdioxide/sulphur (IV) oxide
- nitrogen dioxide/nitrogen (IV) oxide
- chlorofluro carbon (CFC)
- methane

(b) State the source of each of the pollutants named in (a)

Sources of the gaseous pollutant in (a)

Carbon monoxid	le – incomplete combustion of fuel/hydro carbons
Sulphur dioxide	 burning fossils fuels. Volcanic eruption
Nitrogen dioxide	- reaction of N_2 and O_2 at high temperature thunderstorm
Carbondioxide	 burning of organic matter
Chlorofluoro car	bon – from refrigeration/air conditioners
Methane	 decomposition of organic matter

Most of the candidates that responded to this question gave correct answers. However, very few were unable to answer correctly due to weak foundation from the secondary school

$CH_4 + 2O_2 \rightarrow C O_2 + H_2O$

(c) Write a balanced chemical equation for the complete combustion of methane

The question was poorly answered though emphasis on the top of writing balanced chemical equations stem from Junior Secondary School.

QUESTION 2

A water tank with a rectangular base measuring 1.5m by 1.2m contains 1550kg of water. Calculate the:

(a) Weight of the water

Expected answers

a) Weight = mass x acceleration due to gravity = 1550×10

15500N

(b) Pressure exerted by the water on the base of the tank

pressure =
$$\frac{Force}{Area}$$

= $\frac{15500}{1.2 \times 1.5}$
= 8611.1 Nm-2

This question was attempted by majority of the candidates and the performance was fair.

QUESTION 3

- (a) State one function of haemoglobin in the body
- (b) Name the mineral needed in the diet to produce haemoglobin
- (c) State two effects of sickle cell anaemia

Expected answer

- a) To transport oxygen/carbon dioxide
- b) Iron
- c) Less energy/fatigues/exhaustion
 - capillaries blocked
 - pains
 - reduced life span
 - fewer red blood cells
 - slow/poor growth/staunted growth
 - susceptible to infections etc
 - death

This question was poorly attempted by the candidates. In question 3(b) many candidates could not name the mineral needed in the diet to produce haemoglobin

In 3(c), most of the candidates were unable to state the effect of sickle cell though few did so.

QUESTION 4

(a) Distinguish between heat and temperature.

Heat describes the thermal energy in a body while temperature measures he degree of hotness/coldness of a body.

(b) Give two properties of mercury as a suitable thermometric liquid.

- it expands/contracts regularly/uniformly
- it does not wet the glass tubing/cling to the walls of the glass
 - it does not easily vapourise/condense in the tubing
 - it has wide temperature range within which it remains a liquid
 - it is opaque
 - it is good conduction of heat
 - it is high boiling point

A popular question which was fairly attempted.

However, some candidates failed to give the difference which must correspond. For such a question the difference must correspond inorder to score.

Properties of mercury as a suitable thermometric liquid was well answered by most candidates.

QUESTION 5

a) Describe one structural adaptation in relation to the function of each of the following blood vessels

i. An artery

Narrow lumen(1) – enables blood to flow at high pressure Thick elastic wall (1): helps to expand under high pressure

ii. A vein

- Valves (1): prevents the back flow at high pressure
- Wide lumen (1): Allow the blood to flow under low pressure

b) Write a balanced chemical equation for the reaction between sodium and water

- (i) $2 \operatorname{Na} + 2\operatorname{H}_2 O \longrightarrow 2\operatorname{NaOH} + \operatorname{H}_2$
 - correct reactant and product (1)
 - balancing (1)

(ii) State one energy transformation that occurs during the reaction in b(i)

chemical energy __heat/thermal energy

c) (i) Name the three types of radiation that may emitted from a radioactive isotope.

- α alpha particles
- β beta particles
- γ gamma rays

(*ii*) Describe briefly how each of the radiactions in (*ii*) is deflected in a magnetic field.

- alpha particles: deflected towards the south pole
- beta particles: deflected towards the north pole
- gamma rays: Not deflected

d)(i) Distinguish between sensory neurone and a motor neurone.

A sensory neurone carries message/impulses form the organs0. too the central nervous system while a motor neurone carries message/impulses from the central nervous system to muscles/glands

- difference must correspond to score

(iii) State three effects of drug abuse on humans.

- effect of drug abuse on humans:
- health risk/mental disorder, abnormal behaviour
- cause accidents
- wastage of money
- premature death
- crime rate/violence
- prostitution

(e)(i) Define reflection of light.

Reflection of light is bouncing/sending back of light ray after hitting an obstacle/object

Regular reflection	Diffuse reflection
Produced by smooth surfaces	Produced by rough surface
Incident parallel rays are reflected as parallel	Incident parallel rays are reflected in
rays (in the same direction)	different directions

(ii) State two differences between regular reflection and diffuse reflection

(iii) A boy stands 7.5 m in front of a plane mirror

- a) Determine the distance of the boy's image from the mirror I. 7.5
- b) Determine the distance of the boy's image from the boy
 - II. Distance between image and body = 2×0 object distance = 2×7.5 = 15 m(2)

QUESTION 5

- (a) Was poorly answered as much emphasis was not laid on the biology part of the syllabus by teachers.
- (b) Another malaise in Science Core is the chemistry aspect particularly chemical equations. Candidates perform poorly in writing and balancing chemical equations. The reactants and products must be correct to score. The balancing of chemical equations poses a lot of threat to these candidates.
- (c) This sub-questions was well answered and the candidates scored fairly good marks. The three types of radiation were well stated but some of the description by candidates were not strong enough.
- (d) Fairly answered by few candidates. The key word distinguished disturbed them a lot. Definition bringing out the difference is the simple response needed inorder to distinguish effect of drug abuse was answered excellently due to the fact that practical examples are always seen. The candidates scored the marks.
- (e) Poorly answered by candidates particularly the differences were not clearly stated. The mathematical calculation of the distance of the boy's image from the boy was bungled. Most candidates scored low marks.

QUESTION 6

(a)(i) Define the term polymerization

Polymerization is the process of joining monomers together to form polymers

(ii) Write the equation for the polymerization of ethane

 $_{n}CH_{2} = CH_{2} CH_{2} \rightarrow [CH_{2} - CH_{2}]$

(iii) What is the name fo the polymer formed in (ii)?

Polyethene/polythene

(*iv*) Why is it difficult to dispose of the polymer formed in (*ii*)?

It is/cannot decompose non-biodegradable

b) Name the structure in cells of living organisms responsible for each of the following functions

(i) Control of all activities within the cell

- Nucleus

- Control of movement of materials in and out of the cell
- Cell membrane
- Release of energy
- Mitochondrion/mitochondria
- c) (i) Explain why an ecosystem needs an external supply of energy from sunlight.
 - Green plants require sunlight for photosynthesis
 - Ecosystem require green plant for survival
 - (ii) Explain why combustion of fossil fuels is more harmful to the environment than combustion of wood.

Combustion of fossil fuels produces more SO₂ which causes acid rain

d) (i) Explain how identical twins are formed.

Identical twins are formed form the fertilization of a single egg which multiplies and split into two separate individuals

- (ii) A man heterozygous for blood group B marries a woman with blood group O. With the aid of a genetic diagram, determine the possible blood groups of the children.
- e) (i) State the energy transformation that occurs when electricity is produced in a nuclear power station.

Heat energy/nuclear energy \rightarrow electrical energy

(ii) Calculate the thermal energy needed to heat 500 kg of water from 20°C to 100°C

[Specific heat capacity of water is 4200 J.kg oC] Energy = MC Δ T.(MC(T₂ - T₁) = 5000 x 4200(100 - 20) =1.68 x 10°J

f) Explain why elderly people find it difficult to focus on near objects.

- weakened ciliary muscles, (so cannot make lens thick enough)
- loss of lens elasticity (so lens cannot become thick enough)
- astigmatism/irregularity of eyeball.

Question 6 was not a popular question for the candidates but the few who attempted it did a fairly good job.

- a) The definition of polymerization and its chemical equation was done very well though few candidates can write the correct chemical equations.
- b) Questions werepassed on cell structures and their functions. Most candidates gave answers to this one-word response question.
- c) Was straight forward and therefore required a straight forward answer. Majority of the candidates who responded to this question did very well. Few did not know the importance of sunlight as an external energy for photosynthesis.

In (d) most candidates have little knowledge on genetics and was poorly attempted. a simple genetic cross troubled them a lot and some candidates even abandon the question at this point.

e) and (f) was well answered as energy transformation and the eye were treated in their Junior Secondary School.

Calculations on heat required or energy has been dealt with in Junior Secondary School. Though mathematical but the attempt on this question was excellent.

QUESTION 7

7. A solar pump powered is used t fill a water trough from a well. The pipe from the pump to the trough is 9 m long.

(i) State the energy transformation in each of the following stages when the pump is switched on:

- Stage 1: sunlight provides energy for the solar panels Solar energy \rightarrow electrical energy
- Stage 2: An electric motor connected to the solar panels drives the pump electrical energy →kinetic energy
- Stage 3: The pump moves water from the well to the water trough Kinetic energy \rightarrow potential energy

If it takes 12 s for water to move from the well to the trough, calculate the average speed f water through the pipe

- (ii) Average speed = $\frac{distance}{time} = \frac{9}{12} = 0.75 m/s$
- (iv) When the pump is working steadily, it takes 2 minutes to pump 10 kg of water from the well into the trough. [Take $g = 10 \text{ ms}^{-2}$]

Calculate the work done in raising the water Work done = $mgh = 10 \ge 9900$

Calculate the power output of the pump $Power = \frac{energy \ transferred}{time \ taken} = \frac{900}{120} = 7.5 \ W$

b)(i) Explain briefly each of the following terms:

Endangered species

- Endangered species is a group of animals/plants threatened with extinction Conservation

Conservation is the usage, improvement and protection of human and natural resources in a wise manner. This is the preservation or efficient use of resources/rational use of resources.

Biodiversity

Biodiversity is the variation of different life forms found in a particular area (ii) State two reasons why it is necessary to conserve ecosystems

- Ecosystems provide food
- Ecosystems provide fuel
- Ecosystem provide area for recreation/tourist attraction
- Ecosystem help to maintain the balance of life
- Ecosystem support a wide variety of life

c) Give one use each of the following petroleum fractions

i. Refinery gas

for cooking/heating

ii. Kerosene

Fuel for cooking/jet/heating/lighting

iii.Naphtha

For production of petrochemicals/petrol

iv.Diesel oil

Fuel for (diesel) engines

v. Bitumen

For making roads/for making felt

This question was not a popular question as many candidates shy away from it. Few intelligent candidates venture/attempted this question.

The (a) parts was well answered as candidates scored high marks.

In the (b) part the terms were misconstrued to mean some other thing else. Terms like endangered, species, conservation and bio-diversity were completely mis-interpreted to mean differently.

The use of petroleum fractions in (c) was well scored except for refinery gas, naphtha and bitumen which posed a problem to few candidates

QUESTION 8

Polydactyl is a dominant allele in some people who are born with six toes. The allele for five toes is recessive

- *i. State the correct term to describe genotype with two identical alleles* homozygous
- *ii.* State the correct term to describe a genotype with two alleles heterozygous

iii. State the correct term to describe the type of variation shown in polydactyl where there are distinct phenotypes

- iv. Suggest two causes of polydactyl in a family with no history of the condition
 - mutation/spontaneous/random change
 - can be caused by ionizing radiation

b(i) Explain why elements in Group I in the periodic table are reactive while elements in Group VIII are not reactive

Group I elements have one electron in their valence shell which can be easily donated to the other while group VIII elements have a full outer most shell and therefore stable

(ii) Explain how galvanizing a piece of iron nail prevents rusting

- zinc is more reaction than iron
- zinc atoms loses electrons to form zinc ions
- this prevents the oxidation of iron

(iii) State other method of preventing rusting

- painting
- electroplating
- greasing
- alloying
- tarring
- enamel
- etc

c)(i) The speed of sound in air is 330 m/s and in water is 1500 m/s. Explain why the speed of sound is greater in water than in air.

- particles are closer together in water/water is denser
- vibration are passed on more quickly/shorter time between collisions.

(ii) A student stands 83 m from a brick wall with a balloon filled with air. The balloon bursts and 0.5 s later the student hears an echo. Calculate the speed of sound in air.

 $S = \frac{2d}{t} = \frac{2 \times 8}{\frac{0.5}{1/2} \text{ for wrong or no unit}} = 332 \text{ m/s}$

- d) Aluminium has 13 protons and oxygen has 8 protons
 - (i) Write the electronic configuration of the atoms of each of the elements Aluminium Al = 2m8,3 Al = 2S² 1S² 2P⁶ 3S¹ 3P²
 Oxygen O = 2,6 or O = 1S² 2S² 2P⁴
 (ii) Deduce the group and period to which each of the elements belong
 - Aluminium Al: Group III Period 3

Oxygen O: Group VI Period 2

- (iii) Deduce the charges on the ions of each of the elements Ion of aluminium Ion of Oxygen Al^{3+} and $O^{2-/3}+$ or +3 and 2- or -2
- *(iv)* State the formula of the compound formed between the two elements Al₂O₃
- (v) State the type of bond formed in the compound formed between elements Ionic bond/electrovalent bond

Question 8 was the least answered question this year. This may be due to the fact that the genetics and the physics questions were not treated in the syllabus by the teachers. Few candidates attempted this questions and scored high marks

TECHNICAL AND VOCATIONAL SUBJECTS

RÈSUMÈ OF THE TECHNICAL AND VOCATIONAL SUBJECTS

1. <u>STANDARD OF THE PAPER</u>

The standard of the papers compared favourably with those of previous years. The questions were straightforward and within the scope of the syllabus.

2. CANDIDATES' PERFORMANCE

The following were observed by Chief Examiners -

- An improved candidates performance Visual Arts 2(pg.221), Management-in-Living 3(pg.214), Management-in-Living 2(pg.206)
- A decline in candidates performance Home Management 2(pg.200)
- Poor performance of candidates Engineering Science 2(pg.192), Woodwork 3(pg.229)

3. CANDIDATES' STRENGTHS

The following strengths were identified:-

- Candidates performed well in geometrical questions Technical Drawing 2 & 3 (Pgs.219).
- In textile design Visual Arts 3^B (pg.227).
- Defining and stating laws and formulas and expressions Engineering Science 2(pg.192).
- Some improvement in the subject matters Management-in-Living 3(pg.214)

4. CANDIDATES' WEAKNESSES

- No rooms for practical classes Home Management 3(pg.204).
- No proper or inadequate classes on plan of work Home Management 3(pg.204).
- Candidates not familiar with basic terms required in the subject Home Management 2(pg.200) and Visual Art 2(pg.221).

- Inadequate or lack of appropriate tools Metalwork 2 & 3(pgs.217) and Home Management 3(pg.204).
- Inadequate knowledge in the subject Engineering Science 2(pg.192) and Home Management 2(pg.200).
- Poor drawing skills Building Construction 2(pg.190), Visual Art 3^A(pg.225) and Visual Art 3^B(pg.227).
- Inadequate preparation for the examination Woodwork 3(pg.229)
- Lack of trained and qualified teachers Woodwork 3(pg.229).
- Lack of teaching and learning materials e.g. textbooks Food and Nutrition 2(pg.197).

5. SUGGESTED REMEDIES

- Required tools/equipment should be provided for technical and vocationalsubjects and teachers and students taught to handle them.
- An ideal environment for all practical subjects should be provided by school.
- Candidates should be made to work on their drawing and practical skills.
- Complete and comprehension coverage of the syllabus by teachers and candidates.

f(ii)

APPLIED ELECTRICITY 3

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The questions were observed to be of standard quality. The tables provided were an effective guide in aiding candidates in the data required and the calculation to be undertaken. The stepwise instructions further guided candidates on the method to be used to assemble the circuit, collect readings and plot graphs.

However, there was no guide in form of resistor colour code, to assist examiner in determining if the resistor value derive was correct. It was clear from invigilator's report that challenges were encountered with respect to availability of equipment and meters.

2. <u>CANDIDATES' STRENGTHS</u>

The strengths of the candidates cannot be determined as examiner was not present at the time the examination was conducted. This assessment can only be determined in the way candidates connect components and power supply, and collect measured meter readings.

3. CANDIDATES' WEAKNESSES

As stated earlier, this could have been possible if examiner was present when examination was being conducted.

However, based on the response observed on the answer script, candidates are challenged in the area of plotting of graphs.

1. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

Both required candidates to measure the current flowing through the circuit and the voltage across series connected resistors for varying applied DC voltages. Skills test is in the use of a voltmeter and ammeter.

QUESTION 1

Candidates were required to plot a graph of measured currents against measured voltages across the resistor, find the gradient and compare this value to an unknown resistor value.

QUESTION 2

Candidates were to calculate the power (IV_{R2}) and square of the current, then plot a of the two calculated values find the gradient and compare this value to an unknown resistor value.

The response of candidates based on the collected data was relatively poor as in some instants, the added collected voltage was above the input voltage. Again, this can be as a result of the meters provided, but candidates should know that errors of this nature immediately show that reading is inaccurate. Plotting of graph was poorly done.

BUILDING CONSTRUCTION 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

This questions were up to date and to their level. The questions were plain and accurate to answer them very well.

The candidates had knowledge of the questions that was given to them. The periodic time allocate in the class might not be enough as the topics had two, three of more drawings to a particular topic to cover

2. <u>CANDIDATES' STRENGTHS</u>

The supervision of the school that are offering this subject needs to know their constrains and teachers should motivate the candidates that are offering this subject.

3. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(a) List two members in each of the following construction teams:

- (i) builder's team;
- (ii) client's team
- (iii) statutory personnel.
- (b) State two purposes of a strip foundation.
- (c) Sketch each of the following types of setting-out tools:
 - (i) builder's square;
 - *(ii) club hammer.*

QUESTION 2

- a(i) List two utility services required on a construction site:
- (ii) State one reason for each of the services mentioned in (a)(i).
- (b) State one safety measure each to be observed on site when:
 - (i) excavating deep foundation trenches manually;
 - (*ii*) erecting metal scaffold;
- (iii) using a concrete mixer.
- (d) What is meant by the term site clearing?

QUESTION 3

- (a) State three desirable properties of hardened concrete.
- (b) State three functions of an internal wall.
- (c) State the reason for providing a landing in stair construction.

They have understanding in question one, two and three and they answered them to the best of their knowledge. More time should be given to their contact hour in school so that they can complete the syllabus.
BUILDING CONSTRUCTION 3

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The question given is appropriate to the standard of the candidates. The time for drawing should be increased for candidates to fully answer completely. Their answers were satisfactory.

2. <u>CANDIDATES' STRENGTHS</u>

The candidates should be provided with A3 paper with WAEC Logo or stamp to indicate authenticity to answer the question with ease. Drawing board should be provided and monitor by the teachers in schools to enable the candidates become au fait with the drawing instrument.

3. <u>CANDIDATES' WEAKNESSES</u>

The drawing instrument by the candidate should be practice by encouraging candidates to get used to it frequently. Time frame should be introduced when they are practicing.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

The candidates have ideas with all the question which they answered by using the drawing. They should be given assignments regularly.

ENGINEERING SCIENCE 2

1. GENERAL COMMENT ON THE PAPER AS A WHOLE

The questions covered 90% of the subject area/examining syllabus and were of standards quality.

Question 1, covered fluid pressure, moment of a force, velocity and acceleration, reflection, combustion stages of an IC engine, expansion, basics of electromagnetism and electrolysis, and Work done by spring.

Question 2, covered two parts. The first part required the candidates to state the law and calculate both kinetic energy and distance. The second part requested for the sketching of a velocity-time graph and to determine velocity, distance travelled and retardation.

Question 3, also covered two parts. The first part requested for Snell's law to be stated and to calculate real depth. The second part was on curved mirrors, to determine image distance, its magnification and nature.

Question 4 covered only electromagnetic induction. It requested candidates to explain self and mutual inductance, state Faraday's law of electromagnetic induction and to determine flus and emf.

Q5 covered deformation of solids, it requested candidates to define stress, strain and Young's modulus and to sketch a load-extension graph using a given table, and to determine from the graph Young's modulus and the tensile stress at the elastic limit.

The overall performance of candidates was very poor with 33% scoring over 40%.

2. <u>CANDIDATES' STRENGTHS</u>

The overall strengths of candidates were in defining and stating laws and formulas and expression. However, there were problems observed in candidates using the appropriate technical terms that gives correctness to definitions and laws. Example, in defining moment of forces, the concluding clause <u>about a point</u> was excluded which makes the definition incorrect. For Conservation of energy, the word "<u>convert</u> or <u>transform</u>" which are the correct term were replaced with **change** which is incorrect. For Snell's law, the concluding that part which say's "for the/a given pair of media" was omitted. The simple expressions for kinetics energy, work-done under conservation of energy and mirror equations were easily stated. The same applied to the sketching of the velocity-time graph.

3. <u>CANDIDATES' WEAKNESSES</u>

The weaknesses of the candidates were observed in questions attempted. This includes, lack of knowledge in correctly stating and defining laws, the proper way and manner to answer narrative questions, especially in the aspect of internal combustion engines stages and self and mutual inductances of coils.

Another weakness is knowing how to position temperatures in the heat exchange/transfer expression. Candidates are confused in the setting of the temperature difference section.

Application of Faraday's law, especially in stating the expressions for calculating magnetic flux and induced electromotive force.

In most case, candidate use mathematical expression as narrative definition of terms. Example, stress is expressed as force upon area or force upon cross-sectional area, in both case, this is wrong as the definition is the ratio of the force to the cross-sectional area. Again, it is the <u>cross-sectional area</u> and not the **area**.

Weakness was also observed in candidates' ability to extract information from a graph and use it to determine other parameters. Example was to determine Young's Modulus from the sketch extension-load graph.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

- (a) A water bed with dimension 2m long 2m wide and 30cm high is filled with water. Calculate the:
 - (i) weight of water needed to fill it;
 - (ii) pressure it exerts on the floor.



- (b) (i) Define moment of a force.
 (ii) Determine the weight W that will keep the system in equilibrium in the figure above.
- (c) A truck of mass 120kg is accelerating at 1.540ms-2. If it travels a distance of 65m, calculate the total work done by the truck.
- (d) State two applications of total internal reflection.
- (e) In a 4-stroke petrol engine, describe what happens during the
 (i) intake stroke;
 - (ii) exhaust stroke.
- (f) A 0.9kg block of steel is removed from a furnace and put into an insulated tank filled with 5.4g of water at 24^{0} C. If the final equilibrium temperature of water is 38^{0} C, calculate the initial temperature of the steel block. [Heat capacity of steel = 0.46kj kg⁻¹ K⁻¹]



(g)



Use the figure above to calculate the

- (i) impedance of the circuit;
- (ii) power factor
- (h) List four essential parts of a d.c. motor.
- (i) State two factors that influence the selective discharge of ions during electrolysis.
- (j) If a force of 100 N stretches a spring by 0.2cm, calculate the:
 - (i) elastic constant K;
 - (ii) work done in stretching the spring.

The highest mark scored by candidates who attempted this question between 20-30marks. 10% scored over 20 marks and 10% between 12-19marks. Narrative response questions were poorly answered. The heat exchange question was very poorly answered with less than 1% of candidates having the correct answer. The questions on parts of a d.c motor, electrolysis and applications of total internal reflection were a challenge to answer.

QUESTION 2

(a)(i) State the law of conservation of energy.

- (ii) A bullet of mass 50g has a speed of 400ms⁻¹. If it hits a wall which has average resistive force of 20,000 N, calculate
- (α) its kinetic energy;
- (β) the distance penetrated by the bullet.
 - (b) A train starts from rest at station Q and travels with an acceleration of 0.5ms⁻² for 30 s. It then travels at this speed for another 40s; the brakes are then applied, making it retard in a further 20s, and finally comes to rest in station T.
 - (i) Sketch the velocity time graph of this journey;
 - (ii) Determine the total distance travelled;
 - (iii) Calculate the retardation of the train.

This was attempted by all candidates. 20% scored between 15-20 marks and 20% between 10-14marks. Many candidates were unable to state the law of conservation of energy because of the misuse change for convert/transform. Many candidates were able to sketch the velocity-time graph but unable to correctly mark out the time sequence and calculate the retardation.

QUESTION 3

(a)(i) State Snell's law.

- (ii) An object at the bottom of a water reservoir appears to an observer to be 15m below the surface of the water. If the refractive index of water is ³/₄, calculate the real depth of the water reservoir.
- (b) A needle of height 3 cm is placed 15cm in front of a concave mirror of focal length 10cm.
 - (i) Determine its image distance;
 - (ii) Calculate its magnification;
 - (iii) State the nature of the image formed by the mirror.
- (c) A circular hole in an aluminium plate has a radius of 1.46m at 0 0 C. Calculate the diameter of the hole when the temperature of the plate is raised to 100^{0} C. [(α aluminium = 2.3 x 10^{-60}C⁻¹].
- (d) Two spheres A and B of the same mass have specific heat capacity of 440 J

 $kg^{-10}C^{-1}$ and 160 J $kg^{-10}C^{-1}$ respectively. If both of them are initially at 21 ${}^{0}C$ and the same quantity of heat is applied to them, calculate the temperature of B if that of A is 72 ${}^{0}C$.

This was attempted by less than 30% of candidates. 5% scored between 15-20marks. The heat expansion and heat exchange were incorrectly answered by 95% of the candidates.

QUESTION 4

(a) Explain:

- (i) self-inductance;
- (ii) mutual-inductance of a coil.
- (b) (i) State Faraday's law of electromagnetic induction.
 - (ii) A square wire loop 8.0cm on a side is perpendicular to a magnetic field 5×10^{-3} T.
 - (α) determine the magnetic flux through the loop;
 - (β) If the field drops to Zero in 0.1 s, calculate average emf induced in the loop.
- (c) A 20 pF capacitor is connected to a 16 kV ac supply. Calculate the:
 - (i) maximum charge;
 - (ii) energy stored by the capacitor.

This was attempted by 50% of candidates. 10% scored between 10-12 marks. The narrative section was poorly attempted with less than 5% scoring full marks. 15% of candidates correctly attempted the analytical section of the question.

QUESTION 5

(a) Define:

- (i) stress;
- (ii) strain;
- (iii) Young's modulus of elasticity.
- (b) A tension test is carried on a specimen of mild steel, diameter 11.3mm and guage length 100 mm and the results is as shown below:

Load (kN)	0	4	8	12	16	20	24	27.2	28	28.8
Extension (mm)	0	0.017	0.039	0.058	0.078	0.097	0.117	0.133	0.149	0.164

- (i) Plot the graph of load against extension using suitable scales.
- (ii) From the graph determine:
 - (α) Young's modulus;
 - (β) Tensile stress at the elastic limit.

This was attempted by 60% of candidates. 40% of candidates were unable to correctly and properly defined the terms, instead stated the mathematically expression. The

graphical and numerical were also poorly attempted. For this question, 10% of candidates scored 10marks.

FOODS AND NUTRITION 2

1. CANDIDATES' STRENGTHS

The WASSCE in Foods and Nutrition paper II was well attempted by a good number of registered candidates across the country. Attempt was made by the candidates answering the number of questions to be done except for few who answered less than four questions.

From the responses sought a good number of candidates answered questions 1, 3 and 6 satisfactorily whilst questions 2, 4 and 5 were answered basically on their general knowledge and practical experience.

From a conclusive perspective, future questions should be more clear giving candidates the opportunity to gain more marks. For example question 2(ii) where candidates were asked to list two macro-nutrients found in cereals – if they were asked to list two nutrients found in cereals they would have yielded more marks. Vitamins are not macro nutrients, but are found in cereals and the answer for that question included vitamin as macro nutrient. Question 5(a) should have been limited to a number e.g. *State fourimportance of time and energy management instead of using what is time and energy management.*

2. CANDIDATES' WAKNESSES

Majority of the candidates' misinterpreted question 6(a) explain the concept of conservative methods of cooking. From the responses got from the candidates preservation was the key concept of using conservative methods of cooking, retaining/conserving/maintaining nutrients should be the correct answer or key concept for using conservative methods of cooking. Question 3(ii) was also misunderstood by most candidates where they wrote answers based on nutrient grouping instead of the source grouping. 3(i) asked for functional groups of food which was straightforward yielded many correct answers instead of 3(ii).

3. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

- (a) What are herbs and spices?
- (b) State four functions of herbs and spices in food preparation.
- (c) Give four examples each of:-
 - (i) herbs;
 - (ii) spices.

Question 1a, b and c were attempted by majority of the candidates and yielded. Correct answers even though some candidates could not got the correct answer and some did not answer question 1. The questions were straightforward and in line with the syllabus.

QUESTION 2



- (a) Identify the parts labelled I and II.
- (b) State the composition of the parts identified in 2(a) above.
- (c) (i) State six uses of cereals in cookery.
 - (ii) List two macro-nutrients found in cereals.

Had a diagram of a cereal grain with corresponding questions. Majority of the candidates could not give correct answers especially questions 2(b) and (c)(ii).

QUESTION 3

- (a)(i) State the three functional groups of food.
- (ii) State one example of food group for each of the groups mentioned in 3(a)(i) above.
- (b) State four importance of food to man.

Was attempted by most candidates and a lot were able to gain 5/10 and above. However some could not answer the questions and some got below 5 marks. Questions a(i) and (b) were straightforward, written in simple language and more probing.

QUESTION 4

(a) Explain the term work ethics.

(b) Explain four qualities that make up good work ethics.

Question 4 (a) and (b) were also straightforward but not attempted by some candidates. Candidates gave answers based on their general knowledge rather than referring to the topic content in the syllabi/syllabuses.

QUESTION 5

- (a) What is the importance of time and energy management in food preparation?
- (b) State five reasons for adapting and changing recipes.
- (c) (i) List two labour saving devices used in the preparation of vegetable puree.
- (d) State one function of each of the devices listed in 5(c)(i) above.

Question 5 was not attempted by most candidates, even though question 5(b) and (c) were straightforward and written in clear and simple language. Some candidates gave vague answers especially for questions (b) and (c) whilst others gave correct answers.

QUESTION 6

(a) Explain the concept of conservative methods of cooking.

- (b) (i) List four examples of conservative method of cooking.
 - (iii) Give one example each of food items that are appropriate for each of the methods listed in 6(b)(i) above.
- (c) State four advantages of conservative methods of cooking.

Was straightforward and line with the syllabi for Home Economics education across the country. However most candidates who attempted to answer question 6(a) and (b) misunderstood (a) referring to preservation as conservative methods as they key concept Nutrients are conserved, retained or maintained using conservative methods of cooking such as stewing, steaming, poaching and sautéing. On the other hand 6(b) and (c) were understood and majority gave correct answers attracting 4 - 5/10 marks.

On the whole and to conclude all questions drawn more from the syllabi and were up to standard. However textbooks relating to Home Economics education old and new should be made available to various schools.

HOME MANAGEMENT 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The paper compared to previous years was within the level of the candidates. The questions were clear and within the scope of the syllabus.

There was a slight drop in candidates performance. This may be due to candidates not attending classes. Most candidates do not treat the subject with the seriousness it deserves. Lack of text books is a major factor in candidates weak performance.

2. <u>CANDIDATES' WEAKNESSES</u>

Some candidates do not seem familiar with terms and spellings in the subject matter, they could not explain certain definitions and concepts.

3. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

This question was well answered by most candidates. They were expected to -

(a) Describe three types of sewing machines.

Expected answers:-

- <u>Hand sewing machines</u>:- It is operated just with the hands. It requires to be placed on a table. It is less expensive than the others.
- <u>Treadle sewing machine</u>:- This is operated with the feet. The worker has both hands free for stand. It has special pedals on which the feet rest to operate it.
- <u>Electric sewing machine</u>:- This is operated with the aid of electric motor. Some hand and treadle machines can easily be converted. The worker has both hands free to control the fabric.

(b) *List four sewing tools*.

- Ruler
- Tape measure
- Hem marker
- Tracing wheel
- Tracing paper
- Tailor's chalk
- Plunking shears

- Pair of scissors
- Stitch ripper
- Dressmaker's pin
- Pin cushion/emery bag
- Sewing thread
- Tumble
- Needles

QUESTION 2

Few candidates answered the question. It was poorly answered. Candidates were expected to:-

Define the following laundry terms.

- (a) Sorting Collecting all the dirty articles to be washed and separating them according to different fabric, colour, uses etc.
- (b) *Mending* Replacing and repairing fastening and remaining all tears or holes in all the articles.
- (c) Stain removal Is the process of removing unwanted sports from surfaces using stain removing agents such as lime, lemon, salt etc.
- (d) Dry cleaning Any cleaning process for clothing and textiles using a chemical solvent other than water.
- (e) **Rinsing** It is the act of using clean water to remove detergent, dirt or impurity from a washed article.

QUESTION 3

This was not a popular question. Candidates who answered it not clearly state the uses and characteristics of resources. They were expected to:-

- (a) <u>Define resources</u> are valuable assets that can be used to achieve goals or meet needs. The two types are human and non-human. Examples are money, skill, knowledge, cars and building.
- (b) Mention four uses of resources
 - Resources are used for achieving family goals.
 - Individuals and families use resources to maintain control over their lives.
 - People use resources to build their life style.
 - Resources are important in determining the quality of life that people can and do achieve.
 - Resources can be made to work for individuals and families.
 - Resources can be invested to make wealth.

(c) State four characteristics of resources:-

- Should be easily accessible.
- Can be managed.
- Should be useful for a person.
- Are renewable e.g. knowledge, skill
- It can be substituted.
- It can be used to generate income.
- Are scarce.
- Are limited.

QUESTION 4

This was a popular question but a few candidates could not answer 3(c) very well.

(a) Define family.

A family is a group of persons united by ties of marriage, blood or adoption and may be characterized by common residence and economic co-operation.

(b) State four functions of family.

Child bearing/reproduction/multiplication

- Socialization
- Economic role
- Religious orientation
- Protection
- Affection, love and care
- According status.
- Civic responsibility and recreation.
- Provision of basic needs.
- Rearing/nurturing/upbringing.

(c) Explanation the following factors that influence family relationship.

(i) individual differences;

Individual differences: - no two individuals are the same not even siblings. An individual may be slow, quiet, not out going while others could be fast, noisy and outgoing.

- These differences behavior patterns affect how the two groups relate to each other.

(i) home condition

Home conditions:- the general condition existing in a family affect the relationship of the family members. For example – in a house where parents are always fighting, children are likely to feel insecure and relationship will be poor.

QUESTION 5

This was not a popular question. 5(b) and (c) were poorly answered. Candidates were expected to:

(a) Define utilities in the home.

That brings comfort and convenience to the house. They include water, lighting and fuel, sewage, cable TV, trash collection etc.

(b) Guidelines for the use of cooking gas.

- When lighting the burner, strike the matches before turning the knob to release gas.
- Switch off gas supply carefully and properly to prevent the escape of gas when not in use.
- Ensure that the gas cylinder and the hose are not leaking.
- Where possible gas cylinder should be stored outside the kitchen.
- Always clean the cooker and the burner to ensure free flow of gas.
- Ensure there is blue flame when the gas is lit.

(c) Cautionary measures to be adopted in the use of kerosene in the home.

- Fill up the kerosene tank or lamp or stove before lighting.
- Wipe off any kerosene on the lamp or stove thoroughly.
- Always buy kerosene from authorised dealer.
- Store kerosene in clean containers with good/tight fitting lids.
- Keep kerosene containers in a cool dry area away from heat.
- Do no mix kerosene with water or any other fuel.
- Label containers used to store kerosene.

QUESTION 6

This question was not a popular question. Candidates who attempted the question did not perform well.

(a) Points to consider before buying goods on hire purchase:

- Is the article needed?
- By the time the article is fully paid for will it be worn out?
- How long will it take to complete the payment?
- Will it be able to sustain the instalments?
- Will it be wiser to save the money and buy the article later?
- Is the seller or supplier reliable?
- Is the good or service of high quality?
- Will it be beneficial to the buyer?

(b) State five disadvantages of hire purchase.

- Buyers may be tempted to buy more than they can afford.
- If the period of payment is long, the goods may be worn out before they are fully paid for.
- The interest charges are always high.
- The seller runs the risk of non-payment.
- The total amount paid is usually much more than cash price.
- Goods sometimes may not be delivered when needed.
- Goods may sometimes get damaged when transporting to deliver.
- In case of defaulting, the buyer runs the risk of losing the item.
- The seller runs risk of losing the items if the buyer runs away with it.

HOME MANAGEMENT 3

2. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The standard of the paper was the same as previous years. The performance of the candidates was not good.

The practical paper is divided into 3 parts.

- (a) The plan of work This is done as a pre-test to the practical work. This was not done well by candidates. The turnout for the exam was poor.
- (b) This is the practical part of the subject. Most candidates in various schools did not turn up for the exam. This may be due to the heads of institutions not disseminating the change of dates on the time table. Most candidates claim that the y did not know about the change. The subject is gradually dying out because of lack of interest to heads of schools and teachers.

3. <u>CANDIDATES' STRENGTHS</u>

Most schools do not have a room to conduct practicals. Also most school lack basic equipment such as cookers, stoves, coal pot, etc. Candidates have to carry these from far distance to the schools.

Teachers must plan sessions where they will teach students to do the plan of work. The plan of work is done in a scanty manner without selecting the right choice of dishes.

4. DETAILED COMMONTS ON INDIVIDUAL QUESTIONS

Candidates had one question for the practicals.

They were requested to select appropriate rooms, fabrics to launder and food to prepare.

TEST

Your diabetic grandmother is visiting your home this weekend -

- A. Thoroughly clean the bedroom where she will stay.
- B. Clean and lay the wooden dining table on which she will eat her diner.
- C. Launder her house dress.
- D. Prepare a delicious one pot dish for her diner.
- A. The rooms provided by schools were not ideal. Some schools provided just a portion of the room to clean. Candidates had to do the same portions over and over.
- B. Cleaning of the wooden table was done well by most candidates but the laying of the table was not well done. The cover, cutleries were inappropriate.
- C. Some candidates stated cotton fabrics for laundry but no stiffening agents were indicated.

Some candidates did not indicate the type of fabric and some did not iron.

D. Candidates were requested to prepare a one pot dish. Most of them did not indicate the type of one pot dish.

On the whole most of those who turned up for the practicals worked hard.

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The standard of the paper is the same as previous years. There is some improvement in candidates performance.

A few parts of the questions have not been answered well. This may be due to candidates not having text books and the commitment of the teachers towards teaching the subject.

2. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

Most candidates attempted this question, (c) and (d) were not adequately answered by candidates.

They were expected to

(a) Explain the following

(i) child abuse

Is maltreating a child physically, mentally/emotionally and sexually such that the child's right to survive is hampered.

(ii) child neglect

Is a pattern of failing to provide for a child's basic needs to the extent that the child's physical and/or physiological well being are endangered.

(b) State five physical forms of child abuse

- A mother abusing drugs during pregnancy and lactation.
- Dumping of children by parents in their effort to run away from parental responsibility.
- Selling children/child trafficking for money or other fringe benefits.
- Letting a child perform activities that are beyond his/her capacity.
- Exposing a child to harsh weather conditions by not providing adequate clothing and shelter.
- Beating a child mercilessly when an offense is committed.
- Causing harm to the child's body such as burning the child, cutting off, pushing, pulling or dragging.
- Denying children food as punishment.

(c) Explain five emotional effects of abuse on the child.

Most candidates listed the emotional effects.

- (d) State two roles played by each of the following agencies to support abused and neglected children.
 - (i) school
 - (ii) religious bodies
 - (iii) social welfare department/ministry.

Expected answers:

- (a) Explanation of terms:
 - (i) *Child abuse:* is maltreating a child physically, mentally/emotionally and sexually such that the child's right to survive is hampered.
 - (ii) *Child neglect:*-is a pattern of failing to provide for a child's basic needs to the extent that the child's physical and/or physiological wellbeing are endangered.
- (b) Physical forms of child abuse:-
 - A mother abusing drugs during pregnancy and lactation.
 - Dumping of children by parents in their effort to run away from parental responsibility.
 - Selling children/child trafficking for money or other fringe benefits.
 - Letting a child perform activities that are beyond his/her capacity.
 - Exposing a child to harsh weather conditions by not providing adequate clothing and shelter.
 - Beating a child mercilessly when an offense is committed.
 - Causing harm to the child's body such as burning the child, cutting off, pushing, pulling or dragging.
 - Denying children food as punishment.

(c) Emotional effects of abuse on children.

Most candidates listed the emotional effects without explaining.

- *Extreme repetitive night mare:* abuse children experience frequent nightmares as a result of fear.
- *The feeling of guilt and shame*:- children who are verbally or sexually abused may feel guilty and ashamed.
- *Psychosomatic conditions complain:-* children who are abused often complain of conditions which are not real e.g. stomach pain, headache etc. They often blink frequently excessively and bed wet.
- *Negative self-concept:* abused children are withdrawn. They feel neglected and unloved and unaccepted
- *Impaired capacity to trust others:-* abused children have difficulty in trusting other people due to their unpleasant experience.

- *Low self-esteem*:- an abused child may feel neglected.
- *Poor interpersonal relationship*:- abused children have difficulty in relating to peers and adults.
- *Children may grow up to be abusers*:- abused children may grow up to revenge children become easily irritated.

(d) Roles played by the following agencies to support abused and neglected children.

- (i) School
 - PTA to educate parents on the effect of child abuse.
 - Teachers make students aware that ill-treatment of children living with them is criminal.
 - Schools encourage moral teaching on love and the spirit of sharing.
 - Teachers serve as role models.
 - The counseling unit support and care for abused children.
 - The school provides support for children.

(ii) Religious bodies

- They provide counseling services for the children and their parents.
- They provide support for the children in the form of food, clothing and shelter.
- They provide moral education for both parents and abused children.

(iii) Social Welfare Ministry/Department

- They provide parental love needed for healthy growth of the child through foster care services.
- They provide placement services for needy and neglected children with families who can adequately provide love and care.

QUESTION 2

This was a popular question, some of the points were not clearly stated.

(a) Explain the term family planning.

Family planning means deciding on the number of births to give that the family can adequately cater for or

Is a practice of controlling the number of children in a family and the internal of their birth.

(b) Explain five reasons for planning families.

- For the parents to be able to meet their needs.
- To provide comfort and satisfaction to the members.
- To help a mother take on other social activities that will enhance personal growth and mental development.
- To promote physical and mental health of the mother.
- To improve general family living and the quality of life for the individual, the family and the whole society.

- To promote growth and development through better health facilities and nutrition.
- To enable parents have the number of children they can care for.
- (c) Describe the permanent method of controlling family size that is use for
 - (i) females
 - (ii) males

Males:- Vasectomy also called male sterilization. The tubes which carry the sperms from the man's testicle to the penis are blocked. It is irreversible.

Females:- Tubal ligation is done by blocking the two fallopian tubes so that the man's sperms cannot meet the eggs.

(d) State five symptoms of pregnancy in women.

- There is a feeling of fatigue
- Menstruation fails to occur
- Breast become fuller, firmer and very tender
- Nausea or vomiting may occur in the morning sickness.
- Nipples become larger and darker as pregnancy advances.
- There is frequent urination as kidneys become efficient in their function.

(e) State four problems associated with teenage pregnancy.

- Teenage mother may suffer from anemia due to malnutrition.
- Mother may die due to prolong labour.
- Baby may die as a result of low birth weight or prolonged labour.
- Mother may die due to ruptured uterus.
- Mother may have to put up with ridicule from society.
- Baby may suffer from defects.
- May lead to drop-out from school
- Mother may suffer from poverty due to little or no skill.
- Mother may cause abortion which may lead to death.
- May result in early marriage/early motherhood.
- She may gain weight if not checked.

QUESTION 3

Few candidates attempted this question. In (b) and (c) most candidates listed the pint without explanation.

(a) Explain the term equipping the home.

Means providing appropriate and adequate equipment and furnishing for the home.

(b) Explain five points to consider in choosing equipment for a newly built house.

- Needs choose basic items the family will need for their survival.
- Cost choose the best item that can be afforded.
- _

- Ease in cleaning choose equipment made at materials that are easy to clean and also designed in such a way to make it easy to clean.
- Safety choose equipment that is safe for use and will not harm the user.
- Efficiency choose equipment that is effective so as to save time and energy during use.
- Space there should be enough space to accommodate the equipment.
- Durability/quality choose equipment which is of good quality to ensure durability.
- Multipurpose choose equipment that can be used for more than one purpose/have several uses.
- -

(c) Explain five points to consider when renting a house.

- Money available/cost this will determine the type of house to rent.
- Site the site should be healthy, well drained and not prone to natural hazards.
- Neighborhood: select a place where the people have a good standard of sanitation, acceptable moral value and social habit.
- Location:- the house should be located such that there is availability, accessibility and proximity to social amenities.
- Needs of the family choose a house which would provide enough to comfort safety and convenience and pleasure for the family.
- Taste and likes of the family:- this will determine the type of house and its location.
- Size of family:- this will determine the space the family will need to carry out all activities.
- The terms and conditions governing the house tenancy agreement between land lord and tenants.
- Type of house and facilities in the house:- The design and facilities in the house that will be suitable for the family.

(d) List six basic equipment that are required for.

- Cookers coal pots, Swiss stove
- Utensils e.g frying pans, sauce pans refrigerator
- Freezer
- Tools ladles, knives etc
- Appliance blender, food mixers

QUESTION 4

(a) Explain four reasons for advertising.

- To communicate certain information about a product or service: It focuses on giving out facts such as name, special features and quality of a product or service which in the opinion of the advertiser should attract potential buyers.
- To reinforce customers interest: this objective aims at reminding customers to buy again in order to sustain demand for the product.
- To build up brand usage: As a product of a company keep appearing in a media such as the television or on the new papers, it naturally captures the attention of customers.

- To create awareness of new product and services in this case the advertisement is concerned with the situation where customers do not know about the existence of the new product and service.
- To change the attitude and habits of customers: some advertisements are directed to changing people negative attitude and bad habit, drinking and driving.

(b) Describe the billboard in advertising

These are advertisements on large sheets of paper or board usually found on road sides, pictures and captions or catchy phrases or words are used.

(c) (i) Explain (ii) Three advantages of billboards

- They often give an extra idea of the product or services being advertised.
- They are very effective in advertising goods and services to many people including illiterates.
- They can provide reminder at or near the point of sale.
- They are attractive.
- They can be easily seen at a distance.

(iii) Three disadvantages of billboards

- They usually do not give the price of product or service.
- Attractive pictures may encourage impulse buying.
- They are limited in scope and are also expensive.
- They are difficult to maintain due to damages by weather and vandals.

(d) State three advantages of advertising to the consumer.

- Provide useful information about goods and services.
- Increase government revenue.
- Educate consumers on how to use the product.
- Due to competition among producers they improve on their product thus providing quality products for consumers.

QUESTION 5

This was not a popular question. Candidates who attempted did not perform well. Candidates were expected to:

(a) Describe four situations that will require management in the home.

- When there is a problem to be solved For example when there is power outrage or disconnection.
- When there is shortage of resources:- For example not having enough money to meet family needs.
- When there is conflict of wants. For example when two or more activities compete for a resource.

- When one is unable to achieve one's target or goal. For example inability to pass examination.
- When there is need for a change. For example when one is moving to a new school

(c) State four things that can be done to achieve good management in the home.

- Have the ability to recognize all the resources available to the family.
- Use the resources for a purpose or to achieve specific family goals.
- Plan the method of achieving the purposes or goals.
- Understand the kind of home which will satisfy the individual or the family.

(d) Explain the importance of each of the four steps of the planning stage of the management process.

- (i) <u>Setting goals</u>:- It is the first stage. It helps in knowing which of the goals set will be short term and which ones will be long term goals. The goals set provide the direction for the use of resources. Goals set guide us as to what and how activities should be carried out.
- (ii) <u>Identifying, assessing and allocating resources:</u> Finding out the resources that will be needed to achieve goal set knowing where to get the resources and how effectively they are to be used to enhance good accomplishment. It helps in knowing available resources and their ability in setting goals.
- (iii) <u>Setting standards:</u> standards help in measuring goal attainment and influence the kind, the quality and the amount of resources one will need.
- (iv) **Organizing and assessing responsibilities:-** Activities arranged orderly and responsibilities assigned to ensure that goals are achieved.

QUESTION 6

Few candidates attempted the question. The responses were inadequate.

(a) Explain the concept storage.

Storage refers to the art of keeping items used for activities when not in use/Refers to places in the home where people keep possessions e.g. clothing, dishes, books and tools.

(b) State the two principles of storage.

- Place frequently used items at the place of first use.
- Place items so that they are easily seen, reached, grasped and replaced.
- Consider the limit of maximum reach of the person.

(c) Explain six guidelines for achieving proper storage in the home.

- Group similar items together in the same area.
- Keep them within reach for easy accessibility.

T keep items visible use clear containers, wire mesh, open shelves or table items.

- Compartmentalize space by dividing space into closets or drawers and designate a place for each item.
- Provide sufficient clearance at the top and sides for grasping and replacing items.
- Items should be sorted out according to where they are used frequently and stored at the appropriate place.
- Stack together only items that has the same dimension.
- Place heavy items that are frequently used within normal reach.
- Items that are not of the same size should be stored singly to make them visible and accessible without moving other items.

(d) Explain four importance of proper storage in the home.

- To keep things/objects/items out of the way when not in use to prevent clutter in the home.
- Every item/objective has a place.
- Every item is readily accessible.
- It saves time and energy when looking for items/objects
- Helps people to manage their possessions/helps in keeping track of things in the home.
- It promotes efficiency in work.

MANAGEMENT-IN-LIVING 3

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The standard of the paper compared to previous years was within the scope of the syllabus. Candidates have performed well compared to previous years.

Candidates have understood the difference between paper 2 and paper 3.

2. <u>CANDIDATES' STRENGTHS</u>

Responses to some of the questions shows that there is some improvement. The content of paper 3 seems to be understood by students.

3. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

This was a popular question and the performance of candidates was quite good. They are expected to:

(a) List six common household pests.

(b) State five ways cockroaches can be controlled in the home.

QUESTION 2

Few candidates answered this question and the responses were not quite good. Candidates were expected to

(a) State four characteristics of dust.

- is light.
- it settles on any surface.
- adheres to damp surfaces
- when it mixes with grease it is more difficult to remove.
- can be caught and held by rough and smooth surfaces.
- not difficult to remove.
- can be seen floating in the air.
- it is made up of tiny particles.
- is loose.

(b) List four methods that can be used to remove dust from surfaces in the home.

- beating
- sweeping
- shaking
- brushing
- dusting
- by suction/use vacuum cleaner/wiping /mopping/sponging/swabbing.

(c)State two general rules for cleaning

- Remove the loose dirt first
- Remove fixed dirt according to type and the type of surface.
- Polish or re-surface if appropriate.

QUESTION 3

This was a popular question and the responses were quite good. They were expected to:

(a) Explain three hygiene practices during menstruation.

(b) Explain three hygiene practices during menstruation.

QUESTION 4

This was a popular question but the responses were not too good. They were expected to:

(a) List any six diseases that are classified as childhood diseases.

- Whooping cough/pertussis
- Meashes
- Diphtheria
- Meningitis
- Tuberculosis
- Tetanus
- Hepatitis
- Haemophilus influenza
- Chicken pox
- Mumps

(b) State five reasons for immunizing children.

- To protect them against infectious diseases.
- To boost children's immunity.
- To prevent serious complications of diseases from occurring.
- To prevent outbreak of childhood diseases.
- To reduce infant mortality and morbidity.
- It is the child's basic right.
- To enhance children's health.

QUESTION 5

Few candidates answered this question. The (b) part of the question was not answered well by candidates. They were expected to :

(a) What are labour saving devices?

Are equipment or tools and appliances used to save time and energy when performing household duties/tasks.

- Ear infection
- Croup
- Common cold
- Poliomyelitis (Polio)
- Malaria
- Erophthalinia

(b) Explain how the following devices are used in the home to save labour.

- (*i*) <u>*Trolley:*</u>- It takes the weight off the hands when carrying dishes to and fro. Many dishes or items can be carried or transferred from one place to the other with ease on a trolley.
- (*ii*) <u>Vacuum cleaner</u>:- It saves time and energy in removing dirt from carpet thoroughly without causing the strains of bending down while sweeping.
- *(iii)* <u>Blender:-</u>It saves energy and time and prevents strain from grinding or pounding ingredients.

QUESTION 6

Candidates that answered this question could not clearly explain the terms in (a). The (b) part was well done. They are requested to:

(a) Explain the following terms

- (*i*) *Foetus:-* an unborn child still growing in its mother's womb.
- (*ii*) <u>*Neonate:-*</u> this is a newborn infant or baby.

(b) State four consequences of poor nutrition during infancy.

It may lead to:-

- constipation
- diarrhea
- anemia
- stomach upset
- kwashiorkor
- beriberi
- stunted growth
- marasmus
- rickets (bow legs, knocked knees)
- scurvy
- xerophthalunia
- mental retardation
- underweight.

METALWORK 2 & 3

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

The standard of the questions are good with reference to their syllabus. Schools providing the facilities for the teacher of Metalwork had good grades whilst schools with les performed in school.

In Section c pupils found it difficult to answer questions these sections with less practical facilities in school.

The standard of the paper is therefore all right taking into consideration the set syllabus which teachers are expected to adhere to. As an oldsubject, and being practically oriented, the performance of candidates this year is poor than the previous years.

SPECIAL DIFFICULTIES THAT MIGHT HAVE AFFECTED CANDIDATES PERFORMANCE ARE:-

- 1. Inadequate practical exercises.
- 2. Lack of text book.
- 3. Lack of access to tools and equipment not available in their schools.

2. <u>CANDIDATES' STRENGTHS</u>

- 1. Most candidates were not able to answer the questions required and some of their answers showed enough knowledge of the subject as they scored half marks.
- 2. Most of them performed extremely well in question 3(b) and 5(d).
- 3. Teachers must stress on correct spelling, poor diagram in class activities, homework and school exams.
- 4. Generally there has been little improvement over the years and if trained teachers in Metalwork coupled with the provision of practical equipment there is sure to be great improvement on the performance of candidates.

3. <u>CANDIDATES' WEAKNESSES</u>

SECTION A

This section was not well answered as it tested for candidates recall and comprehension knowledge

SECTION B

Candidates had a lot of difficulties in answering to questions related to application of technological principles.

For example prevention and correction of maintenance from polishing of metals and corrosion.

The design process and brief of technology history.

SECTION C

Test of Practical Work

Their responses demonstrate a clear lack of practical knowledge. More practical should be taught in schools.

The workshop is inadequately equipped for such a large number of candidate. Only 13 vices for over 60 candidates.

Drilling exercise not f power supply.

Work incomplete scan bling for work spaces with subsequent time wastage. Adequate time for practicals at least one hour should be provided in school time tables.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTIONS 1 AND 2

a. Candidates were required only to arrange the most ductile to the least ductile metal specifically illustrate / give example copper to lead.

However 50% candidates answered.

QUESTION 3

Quite a number of candidates could not explain the question a practical steps. It was not a difficult question but some candidates found it difficult.

QUESTION 4

Poor response-lack of understanding of the question. Dealt with heat treatment of cutting steel materials in syllabus, satisfactory answers were not given.

QUESTION 5

Lack of practices – poor response are technically related questions and were unsatisfactorily in 3(b) and (c) sections.

This was the most popular question and candidates who attempted it performed poorly.

TECHNICAL DRAWING 2 AND 3

1. <u>GENERAL COMMENTS ON THE PAPER AS A WHOLE</u>

Candidates performances are the usual performances wherein less than fifty percent of the questions were above the average intelligence of candidates who attempted those questions.

The questions adequately covered the West African Senior School Certificate Examination syllabus in Technical Drawing and the questions were clear and simple, and in most cases free from ambiguity.

Rare topics from the syllabus such as triangular lamina were are little bit baffling.

2. <u>CANDIDATES' STRENGTHS</u>

Candidates performed well in both plawe and solid geometrical questions.

Question 1 was the principle involved in first angle orthographic projection the complex part being that the object was inclined to the horizontal plawe.

Question 2 was also simple as the procedure involved in constructing irregular polyon was the cognitive part of this question. The construction of the quadilaoral was ambiguous as the dimensions supplied to construct the complete figure was inadequate.

Question 3 involving the prisms was also straightforward as the true shape was the most difficult part.

Question 4. Most candidates found question four difficult as this part of the syllabus is often neglected by both teachers and pupils.

Paper 3 was the expected question as usual but the roof design in paper 3 was complex. The pulley mechanism is not a usual question in the assembly drawing.

3. <u>CANDIDATES' WEAKNESES</u>

Candidates weaknesses were mainly based on a little alteration on the question. Question one in paper two became baffling when the elevation was inclined to the horizontal plane.

Candidates performances in the other questions were satisfactory except that the plan view which was titled at an angle became a little baffling.

The construction of the irregular polygon was difficult due to the dimension for its construction was not given.

Paper 3 was a better attempted question except for the building drawing in which the depth of the foundation was given a (100) below ground level of which this dimension

should have read 1000. The gable roof construction was complex because it was given too much detail.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

Technical Drawing paper 2 was adequately answered by pupils or candidates. Question one was simple except that the elevation has been inclined. Candidates found it difficult to produce the elevation because corners had to form a right angle.

The question on the construction of an irregular polygon was little ambiguous as the length of QR was not given.

QUESTION 3

PAPER 2

Question number 3 in paper two is a popular topic, except that the plan view was inclined and had to be constructed first and the projecting to the elevation.

QUESTION 3 AND 4

Question 3 seem to be the most difficult and question 4 was answered by nearly all the candidates who attempted this examination as if it was a compulsory question.

The roof construction in paper 3 was the most difficult part of this paper.

Candidates' response to individual questions is as usual over the years. Candidates in certain institution performed better in certain questions compared to other schools.

QUESTION 2 AND 4

PAPER 2

In paper 2 candidates on the whole performed well in questions 2 and 4 than in any other question in paper two.

The inclination of the front elevation in question one, the inclination of the plan in question two was the greatest obstacle for candidates in these subjects. The candidates performance was impressive in the other areas especially the Building and Mechanical Drawing.

VISUAL ARTS 2

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The questions were within the scope of the syllabus. They cover many of the test objectives intended for assessment. They are unambiguous and explicit.

It has been observed that over the years, candidates seemed to perform better in questions based on general principles of art than they do on questions dealing with art history and appreciation. Furthermore they seemed to do better in questions on European Art rather than on Traditional African Art.

In an overview, whilst candidates performance in 2017 was improvement on 2016's performance.

2. <u>CANDIDATES' STRENGTHS</u>

There is no sign of any strength exhibited by the candidates.

3. <u>CANDIDATE'S WEAKNESSES</u>

The candidates responses to the questions suggested the following: -

- 1. Failure to adequately understand the issues brought in the question.
- 2. Inability to tell what is required as answers to the questions.
- 3. They could not explain in detail the answers to the questions.
- 4. Limited knowledge of the facts as required for the questions.
- 5. A manifestation of limited knowledge in the background to Visual Art.
- 6. That candidates could not understand what is meant by characteristics, medium, symbolism functions, art forms etc.

Therefore, candidates must have a thorough knowledge of the content of the Visual Art syllabus, assuming they are very much interested in the subject.

They must endeavour to understand those key terms in art as indicated in number 6 above. It must be noted that they will have to interact with those terms in every Visual Art examination. They are the key to understanding the requirement of a question.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

(a) State five importance of art in the society.

(b) Mention five elements of art.

Many of the candidates attempted this question. Their answers included key words such as domestic, utilitarian, economic, educational, ceremonial etc. all of which art is used for.

Furthermore, some candidates correctly listed line, shape, space, value, tone and form as elements of art. However, a few of them seemed to be confused by the two terms –

elements and principles. They wrongly mentioned emphasis, contrast, balance whilst some others gave some branches of art, carving, sculpture, painting and textile designing as elements.

QUESTION 2 (a) Define the term museum.

A greater number of the candidates defined museum correctly. e.g:-

- (i) "It is a building where ancient treasures or artifacts are stored, preserved and displayed."
- (ii) It is a place where objects considered to be precious and is made of valuable materials and which conveyed power and prestige are kept."

(b) List five types of museum.

In giving types of museum, some candidates included Historical museum, Art museum, Natural museum, Science museum which are acceptable. Some added "special ethnic group museum," "French impressionist museum", which cannot be regarded as type of museum. Artifacts to be exhibited in these can be included in one or more of those mentioned above.

(c) State four functions of museum.

The roles or functions of museum was understood by some of the candidates. They included in the answers the following:-

- It provides a venue for displaying artifacts.
- It provides a place for research on art history.
- It provides a place to preserve artifacts' and records.

QUESTION 3

Discuss Baule Ancestral figure with reference to – (a) location (b) six characteristics (c) medium

This question on Baule art was to test candidates ability to locate and appreciate the Ancestral figure of the Baule people.

Many of the candidates could correctly locate the Baule to the Ivory Coast. A few wrongly wrote "Cameroon". The candidates however, could not give the characteristics of the figure. They were expected to have mentioned the following among others.

- The sitting position of some of these figures
- The arms placed on the stomach
- The bulging stomach

They instead attempted to give something else which appears to be symbolism and functions.

E.g. – The figure is concerned with spirit

- It is use for fertility
- It is made in shrine

Most of them were correct to give "wood" as the medium of expression.

QUESTION 5

Discuss Nok art with emphasis on the following:-(a) Location (b) Medium (c) Six characteristics (d) One function

The question demand the candidates to give the geographical location of Nok, describe the general features of Nok art and to mention what is the main medium of expression and a function of this art.

Even though some candidates identify Nigeria as the location, yet they were not as detailed to have mentioned Nok village near Kwoi, Kaduna state. Candidates instead wrote places such as Allavai Mines, Saggara, Sahara which are disconnected to Nok.

Those who attempted answering this question could correctly mentioned "clay" as the medium used to produce the art.

However, it is apparent that the candidates could not describe the Nok art forms. They failed to mention characteristics such as –

- They are naturalistic
- Some have animal motif mostly used
- They have stylized (human figures)

Instead they perceived Nok art as a single piece and therefore, give incorrect answers such as:-

- It feathers were well decorated
- It is twelve feet high
- It has large bone

Candidates wrote 'it is used for ceremonial functions" instead of being specific. They were expected to have mentioned functions such as:-

- They are used for cultural identification
- They are used as charm
- They are used to prevent erop failure

QUESTION 6

Discuss Tad seated figure under the following headings:-Location Medium Style Six characteristics

Most of the candidates who attempted this question could not identify Nupe, Village of Tada, Nigeria. On the contrary, they perceived "Mali" to be the location.

Furthermore, instead of indicating that "Bronze" is the medium they gave "wood".

Almost all of the candidates did not respond to this part of the question. They could not tell the style of the Tada seated figure. A sole candidate gave "Frontalism instead of naturalistic.

Again, like in the previous question, it came out clearly that the candidates do misunderstood the term characteristics. They misconstrued it to be the same as functions or also symbolism.

Candidates wrote the following:-

- The figure is concerned with the spirit
- It is sometimes sometimes found in shrines
- The figure is used by people for specific purposes

What would have been accepted will be statements such as:-

- They are naturalistic in style
- It is in a seated position
- The eyes do not have pupils.

QUESTION 8

- (a) Define the term expressionism.
- (b) List five expressionist artists.
- (c) State four characteristics of Expressionism.

This question was to test candidates knowledge on a nineteenth century art movement.

One of the candidates could give an answer which included issues such as; the artist emotion which is expressed in his work and not necessarily conforming to objective reality.

Among the list of Expressionist artist that candidates wrote, names like Emile Node, Max Ernest, Paul George were among. Names like Paul Céyanne, Paul Guaguin, Edward Munch Oska Kokoschka were not mention.

The names given by candidates has no bearing to expressionism or even art.

Conscious distortions, intense colours use of contrasting colours are some features of Expressionism but candidates focused on the artist approach to the work.

VISUAL ART 3^A

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The questions are within the context of the syllabus. The items required the examination were affordable and readily available.

2. <u>CANDIDATES' STRENGTHS</u>

None to write home about.

3. CANDIDATES' WEAKNESSES

Candidates expressions of these questions were not up to the task.

Candidates were not able to draw the objects in the composition properly. They seem to have difficulty even to observe and draw the basic shapes of the objects.

The shading quality of the composition exhibited by candidates could not give the desired effect to create forms nor did it show the effect of light and shade.

Candidates also could not quite established the surface on which the objects were resting.

Candidates need to study the basic shape of each object included in a composition. Regular practice on still life composition is required for improvement. Furthermore, regular practice on drawing of forms around them is very necessary.

4. <u>COMMENTS ON INDIVIDUAL QUESTIONS</u>

QUESTION 1

The drawing quality of the bucket and lantern needs improving. They were not too developed from their basic shape to a three dimensional form. All of the drawings could not establish a relationship among the bucket, lantern and table.

Candidates could not show the two objects of bucket and lantern resting on the table top. The tables were not drawn resting/standing, they appear o be suspending.

Candidates ability to depict the real form through tone was not manifested in their works. Their shading techniques used could not indicate effectively the source of light nor could they show forms of actual three dimensional qualities. The bucket and lantern were transparent. Candidates must have observed that shading involves a sequence of gradual, successive stages of tone.

The objects were not adequately centered on the paper nor were there a balanced relationship of the objects. In some of the compositions, the bucket and lantern were drawn on the right edge of the table surface whilst others were done on the left edge of the table. Objects must be centered and overlapping at some parts.

Some of the drawings were small for the space available. Candidates also left composition in space. No base line nor background of the objects were indicated.

Candidates were expected to have knowledge to notice that objects must be resting on a surface and also will have a background behind it.

QUESTION 2

In this question also, the drawing quality is not as accurate as expected. Candidates are tested to bring out their ability to draw objects, show the relationship among the objects and to use tone either in pencil or in colour to create forms.

Candidates failed to draw the tubers of yam, eggs and the low table accurately. The oval shape of the eggs and the freeform shape of the eggs could not be clearly shown.

Effective use of the tone to show the source of light, the forms and unity of the composition was inaccurate. Candidates did not shade effectively.

Candidates were expected to make use of the available on the paper to draw large objects. Candidates must observe that every object in the composition is resting on a surface (the table) and not suspending. They must also realize that there is a background to every composed still life.

Candidates are to use their materials effectively to achieve the right effect. e.g. the soft lead pencil must be used to shade to create the desired form. They must also show the gradation of the shading which shows the source of light.
VISUAL ART 3^B

1. GENERAL COMMENTS ON THE PAPER AS A WHOLE

The questions are within the scope of the syllabus. It covers the objectives that the candidates are to be tested on - graphics, textile and picture making.

2. <u>CANDIDATE'S STRENGTHS</u>

None note for the graphic design. A few in the textile design in which the candidates have to use an even tone of the background colours.

3. CANDIDATES' WEAKNESSES

Some of the candidates misunderstood the question and did something not requested for. Candidates could not produce a consistent motif in the repeat patterns. Furthermore, the colour quality is also inconsistent. In all of them, the lines used to demarcate the units are all very visible as if they are part of the design.

Candidates must ensure they read the questions carefully and know exactly what they demand. Key words such as Logo, repeat pattern, half drop, all over repeat, poster, book cover etc. are identified. They determine what is to be done. Examples of every one of these terms are to be sought so that they can see evidence of these products.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 2

The candidates out rightly misunderstood the question. Instead of designing a logo, they designed a repeat pattern with a logo motif. The logos were repeated.

Candidates should realize that a "Logo" is a symbol or emblem that acts as a trademark or a means of identification of an entity including an institution such as a school.

The size of the logo should have covered 30cm by 30cm which means it should cover a square.

QUESTION 3

The candidates interpreted the question correctly. They were required to produce a repeat pattern suitable for a farmer's Association.

Candidates used motifs suitable for the purpose e.g. A sickle and a bundle of wheat straws. However, they were not consistent in their size and form.

Every one of them designs a full drop repeat pattern which is appropriate to the question. They also adhere to the size specification.

Candidates were able to arrange the motifs in an attractive way. One candidate especially did arrange the cutlass and bunch of grapes to produce a letter "R".

This candidate included all of the elements in a repeat pattern – line, shape, colour and texture.

However, their background colour even though they are in contrast with those used on the motif, they were not evenly spread. Candidates could not get rid of the lines used to create the units. They appear to be part of the design of which they are not. These lines should be erased before the colouring of the background except they form part of the design.

Many of the candidates did not add texture to their designs

WOODWORK 3

1. GENERAL COMMENTS ON THE PAPER AS

- i. Flat head screws are supplied to candidates instead of counter sunk screws.
- ii. Improvised sliding buelle of marking done tails are used.
- iii. Only two sets of tools are available due to lack of tools.
- iv. The correct 6mm plough plane blade is not available and the grooves are made using a saw and 6mm chisels.
- v. One of the candidates work pieces had cracks due to misuse of tools, wrong dimension that is why the joints were open and cracked.

The questions set in Section A were within their standard. In Section B and C candidates found it difficult to answer questions. This sectionwas performed poorly.

2. <u>CANDIDATES' STRENGTHS</u>

Some candidates performed extremely well while others did very poorly.

The poor performances of candidates in external examination lies in their preparation. This is a two way process. Getting the required material for the examination in the way of good teaching on the one hand and then reading for the examination another.

The Ministry of Education in collaboration with the few schools offering Woodwork should establish extension programme that would make available to students, providing current text books to improve on their practical work.

Generally there has been no improvement over the years of lack of trained teachers in Woodwork coupled with the provision of practical equipment there is sure to be great improvement on the performance of candidates.

3. <u>CANDIDATES' WEAKNESSES</u>

SECTION A

This section was not well answered as it tested for candidates recall and comprehension knowledge.

SECTION B

Candidates had difficulties in answering to questions related to application tools and Technological principles.

Examples – prevention for pest on attaching material that is wood.

Preventation from tools corrosion etc.

The design process.

SECTION C

a. Lack of practical knowledge. More practicals should be taught in school.

- b. More practical lessons be included in the curriculum/syllabus.
- c. Enough workshop space to be made available.
- d. More time for practical work at least two hours be provided for in school timetable.

4. DETAILED COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

Poor response – lack of understanding of the question.

QUESTION 2

Very Good

QUESTION 3

Not so good – inadequate knowledge of appropriate – Technology.

QUESTION 4

Evidence of lack of knowledge of the exploded view of a tee halving joint i.e. pictorial sketch of the dovetail tee halving joint.