INTEGRATED SCIENCE

1. GENERAL COMMENTS

The standard of the paper compared favourably with that of the previous years.

Candidates' performance was better when compared with the previous years.

2. A SUMMARY OF CANDIDATES' STRENGTHS

(1) Majority of the candidates left at least two or three lines in between their answers and this makes work very neat.

(2) Many of the candidates wrote the question numbers they answered on the front page in the box at the bottom.

(3) Majority of the candidates drew their diagrams using pencil. The diagrams were large enough and labels provided e.g. Q3: Emitter and Collector with the arrow well indicated.

3. A SUMMARY OF CANDIDATES' WEAKNESSES

(1) Majority of the candidates exhibited poor spelling of key points or terms e.g. 'Blood pod' instead of 'black pod', 'distillation' instead of 'distillation' etc.

(2) Most of the candidates also wrote wrong facts to some questions e.g. Q2(d) candidates wrote answers such as, clay silt and sand which are types of soil instead of; air; water; humus etc. which are components of soil as demanded by the question.

(3) Majority of the candidates answered more than one or two questions on a page. Question one was compulsory but some candidates did not answer it.

(4) Majority of the candidates did not add the units for measuring the lengths, a, b, c on the diagram. Some candidates did not add the units used for the measurement.. Many candidates did not consider the precision of the meter rule.

4. SUGGESTED REMEDIES

(1) As regards poor spelling of key points, it is suggested that at least fifteen (15) minutes of each double period be used to drill the candidates on spelling of key words/terms.

(2) Science Teachers should teach every aspect of the syllabus instead of teaching selected topics. Demonstration lessons could even be conducted to highlight key words or terms.

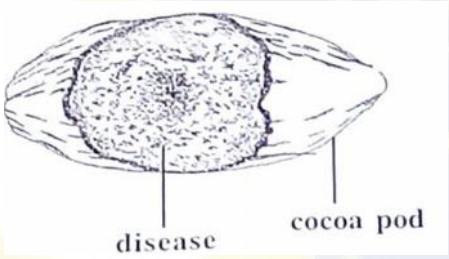
(3) Candidates should be informed that each new question should be started on a fresh page.

(4) During practical classes the candidates should be directed to add the relevant units during measurement. The precision of the instrument used should also be told e.g. ruler/meter rule/tape (1dp), clock (1dp), stop watch (2dp) etc.

5. DETAILED COMMENTS

Question 1

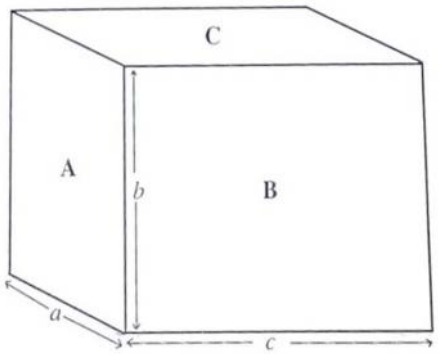
(a) The diagram below is an illustration of a cocoa pod infected by a disease. Study the diagram carefully and answer the questions that follow.



(i) Name the diseases illustrated on the pod.
(ii) Mention the causative organism of the disease.
(iii) Describe one symptom of the disease.
(iv) State one farm practice that promotes the spread of the disease.
(v) Give two practices farmers could adopt to control the disease.

(b) The diagram below is an illustration of a cuboid with faces A, B and C shown And sides a, b and c indicated.

Study the diagram carefully and answer the question that follow.



(i) **Measure and record the length of each of the sides labelled a, b and c, in centimetres.**

(ii) **Determine the area of each of the A and B.**

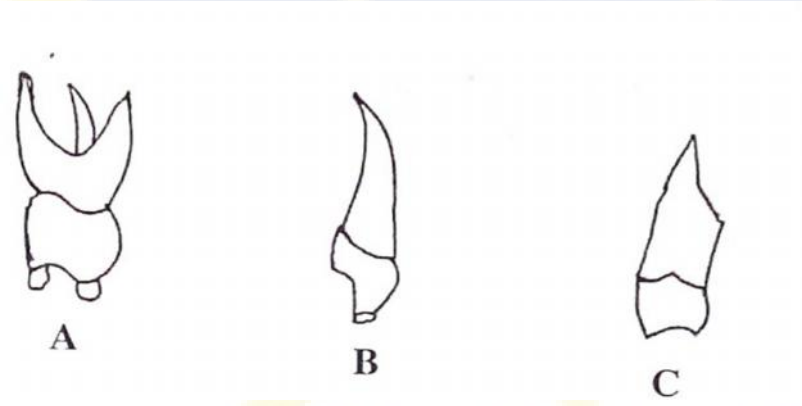
(iii) **If the weight of the cuboid is 100 N, determine the pressure exerted by the Cuboid in N/cm^2 when it lies on:**

(α) **face A;**

(β) **face B;**

(iv) **From your results in (iii), explain how pressure exerted by a body changes with the area on which it lies**

(c) **The diagrams below are illustrations three different types of teeth, labelled A, B and C, in humans.**
Study the diagrams carefully and answer the questions that follow.



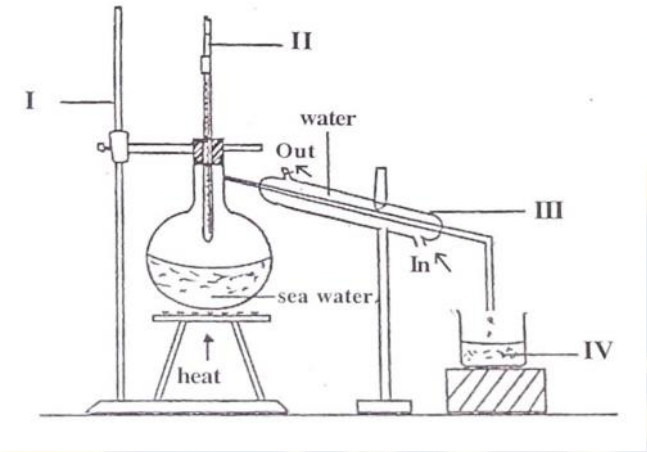
(i) **Name each type of teeth labelled A,B and C.**

(ii) **State one function of each type of teeth labelled A,B and C.**

(iii) **State two observable differences between the tooth labelled A and that Labelled B.**

(iv) **Mention two ways of ensuring proper dental care.**

(d) The diagram below is an illustration of an experimental set- up used to separate water and salt solution.
Study the diagram carefully and answer the questions that follow.



(i) Name each of the parts labelled I,II,III and IV.
(ii) Name the method of separation used.
(iii) State one function of each of the parts labelled II and III.
(iv) Name three physical processes that are involved in the separation of the mixture.

Question (a)(i) to (v) was well answered by many of the candidates.

In part (b)(i), majority of the candidates were able to measure and obtain the correct values but they did not add the units. They wrote answers like; 2, 4, 5 instead of 2.0cm, 4.0cm, 5.0cm taking cognizance of the precision of the instrument used.

In parts (b)(ii) and (iii), many of them were able to do the calculations but here again they were not adding the units. They wrote answers like, 2 x 4 = 8 instead of 2.0cm x 4.0cm = 8.0cm^2.

In part (c)(i) majority of the candidates were able to identify the different types of teeth labeled A, B and C.

They were able to state their functions too correctly in part (c)(ii). Many candidates could not however differentiate between the teeth labeled A and B.

Majority of candidates who attempted part (d) had difficulty in labeling, I, II and III due to poor spellings e.g. restort stand, thermometer, condenser etc.
In part (d)(iv), many candidates could not spell distillation correctly, they spelt it like distillation (with only one 'l').

Question 2

PART II
[60 marks]
Answer four questions only from this part

(a) (i) What is technology?
(ii) State two differences between science and technology
(b) Draw potassium atom and show the distribution of electrons in its shells. [K=19]
(c) What energy transformations take place in each of the following activities?
(i) Using a flashlight battery to produce light in a bulb.
(ii) Using a microphone to address a gathering.

(d) List three components of soil.

This question was well answered by many candidates.

In (b), majority of the candidates drew the diagram well but they did not indicate the nucleus and electrons as demanded by the question.

Part (c)(i) was well answered by many candidates but candidates wrote the correct answer for (c)(ii).

Part (d) was poorly answered by many candidates. They rather provided answers for types of soil – clay, sand, silt and loamy soil instead of components of soil – air, water, humus, living organisms etc.

Question 3

(a) (i) Mention the junctions of a transitor.
(ii) Draw the circuit symbol for n- p-n transistor.
(b) State one function of each of the following parts of the human circulatory system:

(i) blood;
(ii) blood vessel;
(iv) heart.

(c) Classify each of the following substances as element, compound or mixture:

(i) air;
(ii) brass;
(iii) chlorine;
(iv) gold;
(v) water.

(d) State three ways of caring for farm machines.

Parts (a)(i) and (ii) were satisfactorily answered by many candidates. Many of the candidates wrote Base as one of the answers instead of emitter and collector only as the two junctions. few candidates did not indicate the arrow coming towards the emitter and some did not draw the circle round the circuit diagram.

In part (c), majority of the candidates obtained the correct answers but they did not do the classification as demanded by the tabular form like, element/compound/mixture.

Part (d) was answered by many of the candidates.

Question 4

(a) (i) State two physical properties of water.
(ii) Using litmus paper, explain why water is neutral. [4 marks]

(b) Give one function of each of the following nutrients in plants:
(i) nitrogen;
(ii) potassium.
[4 marks]

(c) (i) State two human activities that disrupt the carbon cycle.
(ii) State two effects of the disruption of the carbon cycle on the environment.

(d) (i) What density of a body?
(ii) A body of mass 50kg has a density of 2 kg/m^3. Calculate the volume of the body.

Part (a)(i) and (ii) were attempted by many candidates and their answers were correct except a few candidates who could not spell – colourless and tasteless etc.

In part (b)(i) and (ii), the function (one) of nitrogen and potassium in providing nutrients to plants was not satisfactorily answered.

Part (c)(i) and (ii) were not satisfactorily answered by many candidates. It appears both questions were not clearly understood by the candidates.

In part (d)(i), majority of the candidates defined density correctly in words. A few also wrote the formula and defined the key letters e.g. $d = \frac{m}{v} =$ where d = density, m = mass and v = volume.

The calculation on density in part (d)(ii), was successfully done by most candidates. Most candidates got the number correct but could not write the correct units, 25kgm^{-3} instead of 25m^3.

Question 5

(a) What is a vegetable crop?

(b) (i) What is air pollution?
(ii) State two human activities that lead to air pollution.

(c) (i) List three modes of heat transfer.
(ii) Name the type of medium in which each mode of heat transfer you have listed in (i) takes place.

(d) Give three reasons why proteins are important in the diet of mammals.

In part (a)(i), majority of the candidates got the correct answers to the question. A few candidates could not spell the key words, they wrote answers like, 'condution', 'convertion' and 'radiation'.

Part (c)(i) was well answered by majority of the candidates.

Part (d) was poorly answered as majority could not provide all the three reasons why protein is important to mammals.

Question 6

(a) State one function of each of the following parts of the human reproductive system:
(i) penis;
(ii) ovary;
(iii) oviduct;
(iv) testis;
(v) uterus.

(b) (i) What is electrical conductor?
(ii) List two substances which are insulators.

(c) State three ways of maintaining soil fertility.

(d) Write word equation for each of the following chemical reactions:
(i) oxygen and hydrogen;
(ii) nitrogen and hydrogen;
(iii) sodium and chlorine.

In part (a), the functions of each of the given reproductive organs (i) penis (ii) ovary (iii) oviduct (iv) testes and (v) uterus were successfully answered. A few of the candidates produced answers like the penis is used to produce sperms and it is also used for sexual intercourse. Some also wrote that the ovary is to receive the sperms.

Parts (b)(i) and (ii) were correctly answered by many of the candidates which as it is a practical question and therefore a good one.

Part (c) was also correctly answered by majority of the candidates as it a practical question in agriculture.

Part (d) is a good question. Many of the candidates were able to write word equation. A few of them rather wrote the chemicals, but could not even balance them which was not the demand of the question.