

- ❖ PAST QUESTIONS
- ❖ QUIZZES
- ❖ REVISION NOTES
- ❖ SYLLABUS / CHIEF EXAMINERS' REPORT
- ❖ LESSON NOTES
- ❖ FREE COURSES
- ❖ CAREER / SCHOLARSHIP OPPORTUNITIES
- ❖ STUDENT NEWS

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SC 2021

INTEGRATED SCIENCE 3
TEST OF PRACTICAL WORK
[60 marks]

2 hours

DIRECTIONS TO CANDIDATES

1. Do **not** turn over this booklet until you are told to do so.
2. In the spaces provided above, insert your Name, Full Index Number, normal Signature and the Date of Examination.
3. Answer **all** the questions in this booklet.
4. On **no account** should you tear any part of the booklet. The entire booklet will be collected at the end of the test.
5. **All rough work should be done in this booklet** and then **crossed out** neatly. Under **no circumstance** should you work on any other paper.
6. Write the **NUMBERS OF THE QUESTIONS YOU HAVE ANSWERED** in the order in which you have answered them, in the space provided below.

For Examiner's Use Only	
Question Number	Mark
TOTAL	

1. The steps involved in the preparation of soap from palm oil are outlined below as **I, II, III, IV, V** and **VI**, but not in any order.

Study the steps carefully and answer the questions that follow.

- I.** Water is added to the cocoa pod ash, stirred and filtered;
- II.** The mixture is boiled and stirred for sometime and then allowed to cool;
- III.** Palm oil is poured into a can and heated;
- IV.** Dry cocoa pods are burnt into ash;
- V.** The solution is poured into hot oil;
- VI.** The crust that forms on top of the liquid is removed.

- (a) Arrange the steps in the **correct** sequence.

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[6 marks]

- (b) Name the scientific principle underlying the preparation of soap.

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[1 mark]

- (c) Name the substance that could be used to speed up the precipitation of the soap.

.....

.....

[1 mark]

- (d) State the step in which it is **most** appropriate to introduce the catalyst.

.....

.....

[1 mark]

- (e) Name the chemical substance present in the solution of the cocoa pod ash.

.....

.....

[1 mark]

Index Number: 3

- (f) State **two** effects of impurities in the soap produced.

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[2 marks]

- (g) Describe the test to confirm that the product is soap.

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[2marks]

2. Fig.1 is an illustration of organisms labelled A, B, C and D that attack crops and farm animals. Study the illustration carefully and answer the questions that follow.

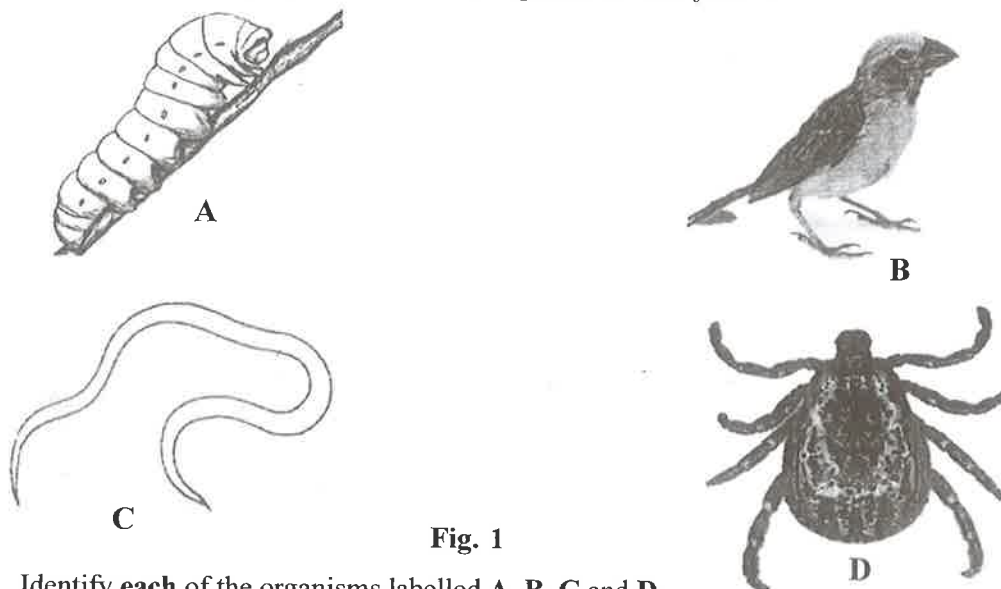


Fig. 1

- (a) Identify **each** of the organisms labelled A, B, C and D.

A.....

B.....

C.....

D.....

[4 marks]
Turn over

(b) List the organism(s) that can be classified as:

(i) pests;

.....

.....

(ii) parasite.

.....

.....

[4 marks]

(c) Name **one** crop or animal that is attacked by **each** of the organisms labelled **B** and **D**.

B.....

D.....

[2 marks]

(d) State the kind of damage that **each** of the organisms labelled **A**, **B** and **C** causes to its hosts.

A.....

.....

B.....

.....

C.....

.....

[3 marks]

State **one** adaptive feature of the organism labelled **B** which enables it to cause the damage stated in (d).

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[1 mark]

(f) State **two** methods of controlling the organism labelled **D**.

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[2 marks]

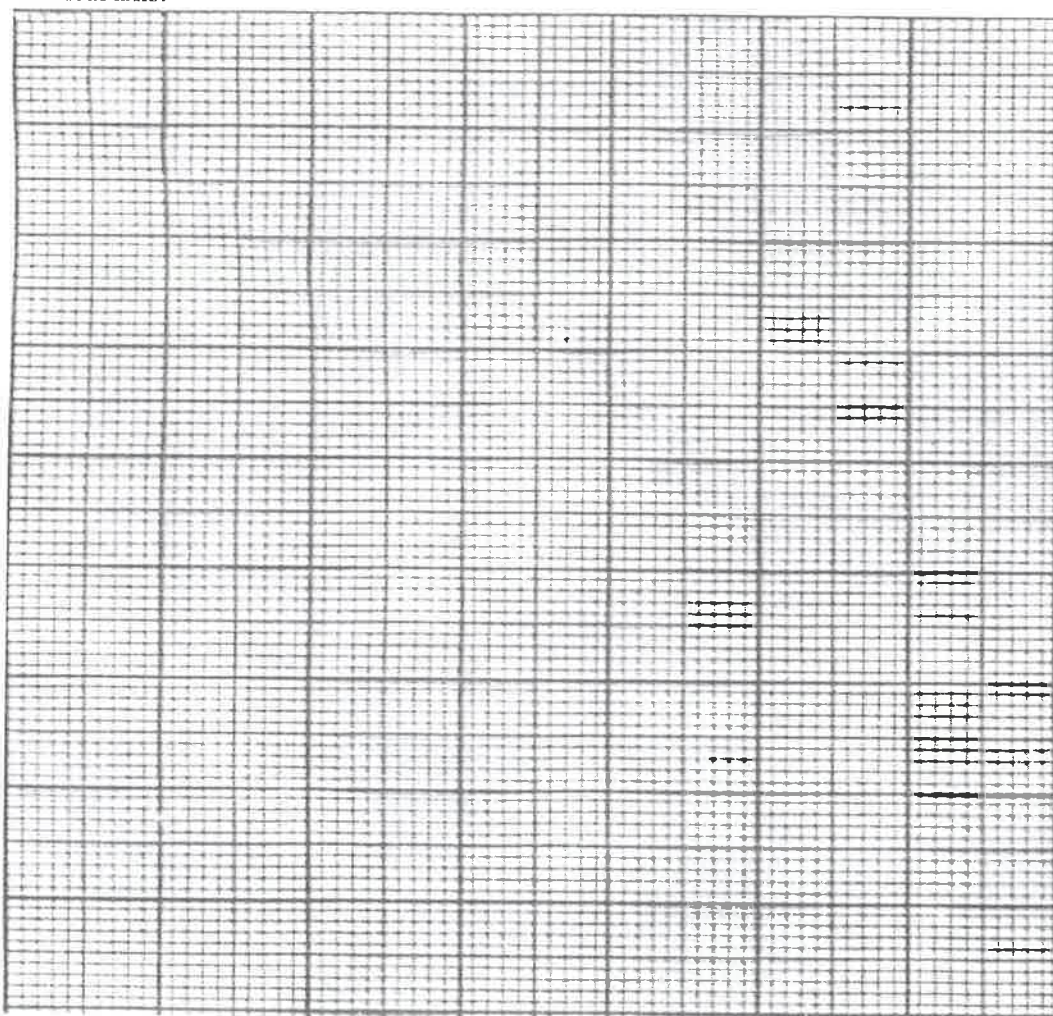
Index Number: 5

3. The table below shows the height distribution of a number of students in a Senior High School in Ghana.

Study the table carefully and answer the questions that follow.

Height/cm	Number of students
139.5 - 149.5	6
149.5 - 159.5	9
159.5 - 169.5	7
169.5 - 179.5	5
179.5 - 189.5	2
189.5 - 199.5	1

- (a) Draw a histogram with *height* on the horizontal axis and the *number of students* on the vertical axis.



[5 marks]

Turn over

- (b) Calculate the total number of students in the class.

.....

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[1 mark]

- (c) (i) From the histogram, determine the number of students with heights:
 (α) less than 159.5 cm;

.....

.....

- (β) more than 169.5 cm.

.....

.....

[2 marks]

- (ii) Calculate the percentage of students with heights between 149.5 cm and 179.5 cm.

.....

.....

.....

[3 marks]

- (d) State the concept in Genetics that the data illustrates.

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[1 mark]

- (e) Give **two** other examples of physical traits in humans that could illustrate the concept stated in (d).

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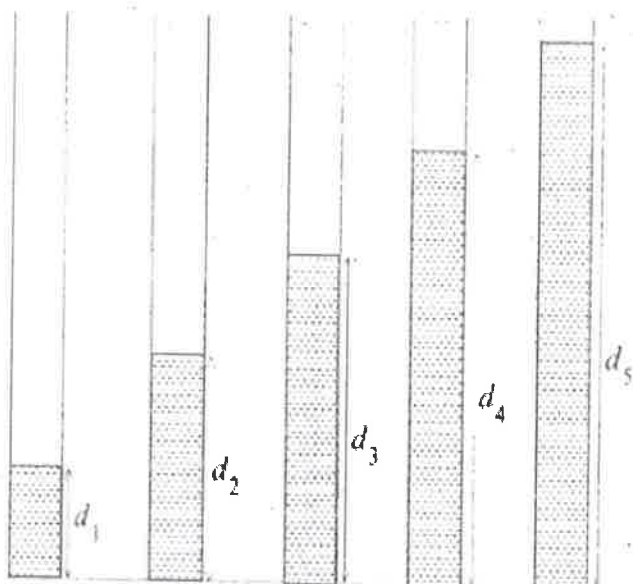
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[2 marks]

Index Number: 7

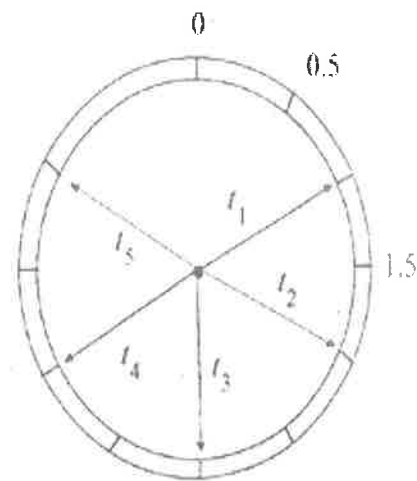
4. The rate of flow of water from a pipe in the laboratory was determined. The tap was opened to deliver water into a container. The volume V , of water discharged into the container in a time interval, t was measured. The procedure was repeated for **four** different volumes of water discharged and in **each** case, the time interval was recorded.

Fig.2(a) illustrates the raw volumes $d = d_1, d_2, d_3, d_4$ and d_5 of water discharged while Fig.2(b) illustrates the corresponding time interval $t = t_1, t_2, t_3, t_4$ and t_5 of discharge.



Scale: 1 cm represent 500 cm^3

Fig. 2(a)



Time in Seconds

Fig. 2(b)

- Measure and record the raw volumes $d = d_1, d_2, d_3, d_4$ and d_5 .
- Convert d to real volumes $V = V_1, V_2, V_3, V_4$ and V_5 , using the scale provided.
- Read and record $t = t_1, t_2, t_3, t_4$ and t_5 .
- Tabulate the results in table 1.

Table 1

d/cm	$d_1 =$	$d_2 =$	$d_3 =$	$d_4 =$	$d_5 =$
V/cm^3	$V_1 =$	$V_2 =$	$V_3 =$	$V_4 =$	$V_5 =$
t/s	$t_1 =$	$t_2 =$	$t_3 =$	$t_4 =$	$t_5 =$

- Plot a graph with V on the vertical axis and t on the horizontal axis.

[7 marks]

- Determine the slope of the graph.

[5 marks]

- Explain the value of the slope.

[3 marks]

[1 mark]

END OF PAPER

