THE WEST AFRICAN EXAMINATIONS COUNCIL
West African Senior School Certificate Examination
INTEGRATED SCIENCE 2
Test of Practical Work
May/June 2013

Write your name and index number in ink in the spaces provided above.

Answer all the questions.

Write your answers in the answer booklet provided.

Credit will be given for clarity of expression, orderly presentation of material and for answers which show that you have had the required practical experience.
1. Figure 1 is an illustration of a set-up for the preparation of a gas in the laboratory. Study the figure carefully and use it to answer the questions that follow.

![Figure 1](image)

(a) Name the parts labelled I, II, III, IV, V, VI, VII and VIII. [4 marks]
(b) (i) Name the gas produced.
(ii) How could the gas produced be tested for?
(iii) State two uses of the gas named in (i) above. [5 marks]
(c) Write a balanced chemical equation for the reaction that occurred. [2 marks]
(d) Suggest two suitable metals which could be used instead of the zinc. [2 marks]
(e) State two precautions that should be taken in this experiment. [2 marks]

2. In an experiment to investigate the relationship between the density of a cuboid and its mass, five cuboids of different masses $M_1$, $M_2$, $M_3$, $M_4$, and $M_5$ of equal dimensions were used. The mass of each of the cuboids was determined using a weighing balance. The volume, $V$, of one of the cuboids was determined by measuring the length ($l$), breadth ($b$) and height ($h$). Figure 2a below represents the masses, $M_1$, $M_2$, $M_3$, $M_4$, and $M_5$ while Figure 2b represents the diagram of one of the cuboids.

Study the figures carefully and answer the questions that follow.

![Figure 2a](image)

![Figure 2b](image)
(a) (i) Read and record the mass \( M = M_1, M_2, M_3, M_4, \) and \( M_5. \)
(ii) Measure and record the length (\( l \)), breadth (\( b \)), and height (\( h \)) of the cuboid in Figure 2b.
(iii) Calculate the volume (\( V \)) of the cuboid in Figure 2b.
(iv) Determine the ratio \( \frac{M}{V} \) for each of the cuboids.
(v) Tabulate the results obtained in (i) and (iv) in your answer booklet using the table shown below.

\[
\begin{array}{|c|c|c|c|c|c|}
\hline
M & M_1 & M_2 & M_3 & M_4 & M_5 \\
\hline
V & \frac{M_1}{V} & \frac{M_2}{V} & \frac{M_3}{V} & \frac{M_4}{V} & \frac{M_5}{V} \\
\hline
\end{array}
\]

(b) Plot a graph with \( M \) on the vertical axis and \( \frac{M}{V} \) on the horizontal axis.

(c) (i) Determine the slope of the graph.
(ii) What does the slope determined in (i) represent?

3. Figure 3 below is an illustration of a farm animal.

*Study the figure carefully and answer the questions that follow.*

![Figure 3](image)

(a) Identify the farm animal illustrated.

(b) (i) Name the parts labelled I, II, III, IV, V, VI, VII, VIII, IX and X.
(ii) State one function each of the following labelled parts:
   (\( \alpha \)) VI;
   (\( \beta \)) VII;
   (\( \gamma \)) X.

(c) (i) Name the management practice that could be carried out on the part labelled X.
(ii) State two advantages of the practice named in (i) above.

(d) (i) Name one endoparasite that infests the farm animal illustrated.
(ii) State one way of controlling the parasite named in (i) above.

(e) State two reasons why the illustrated farm animal is reared.

Turn over
4. (a) Construct a food chain using the organisms listed below:
hawk, grasshopper, frog, grass.

(b) Figure 4 illustrates a reflex arc in a human.
Study the figure carefully and answer the questions that follow.

(i) Name the parts labelled I, II, III, IV, V, VI, VII and VIII.
(ii) State one function each of the following labelled parts:
    (a) I;
    (b) III;
    (c) VIII.
(iii) Explain what would happen when each of the following labelled parts is damaged:
    (a) V;
    (b) VI.

END OF PAPER