

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology

5090/6

Paper 6 Alternative to Practical

Wednesday

22 NOVEMBER 2017

Additional Materials:

Answer paper

Diagram Booklet

Print Version of Braille Paper

Time 1 Hour 15 Minutes

Instructions to Candidates

Write your **name**, **centre number** and **candidate number** on the answer paper.

There are **three (3)** questions in this paper.

Answer **all** questions.

Write your answers on the answer paper.

Information for Candidates

The number of marks is given in brackets [] at the end of each question or part question.

Cell phones are not allowed in the examination room.

- 1** A learner carried out an experiment to show the action of salivary amylase at room temperature. The preparations were done as follows:

Test tube A = contained 3.0cm³ of saliva with 1% starch solution.

Test tube B = contained 3.0cm³ of boiled saliva with 1% starch solution.

Test tube C = contained 3.0cm³ of distilled water with 1% starch solution.

After 30 minutes, the solutions were tested with iodine solution.

- (a)** What observations were seen in each of the test tubes?

Test tube A:..... [1]

Test tube B:..... [1]

Test tube C:..... [1]

- (b) (i)** With the results obtained in test tube **A** above, what is the conclusion?

..... [1]

- (ii)** Give a reason for your answer in **(b) (i)** above.

..... [3]

- (c) (i)** What was the purpose of test tube **C**?

..... [1]

- (ii)** Give a reason for the results obtained in test tube **B**.

..... [1]

- (iii)** State **two** other properties of an enzyme.

..... [2]

[Total: 11 marks]

2 Two potted maize seedlings **A** and **B** were used in an experiment to investigate a plant response. Seedling **A** was put in a box with a small opening on one side while seedling **B** was placed in another box with a small opening on top. Both seedlings were left outside the room for five days.

(a) (i) Describe the direction of growth of each of the seedlings.

Seedling **A**: [1]

Seedling **B**: [1]

(ii) Name the stimulus in this experiment.

..... [1]

(iii) State the type of response exhibited by the two seedlings.

..... [1]

(iv) What is the significance of the response mentioned in (a) (iii) above to the plant?

..... [2]

(v) Name a plant hormone responsible for the response observed in the seedlings.

..... [1]

(b) How do roots respond to light?

..... [1]

(c) Name **three** other responses which are exhibited by plants in their environment.

..... [3]

(d) Write **two** differences between the type of response exhibited by maize plants and that exhibited by cockroaches to light.

..... [2]

[Total: 13 marks]

3 A grade twelve learner was provided with a leaf with white and green patches which had been exposed to sunlight for eight hours. The learner tested the leaf for starch using the following steps:

Step 1: The leaf was first boiled in water for 2 minutes.

Step 2: The leaf was then boiled in ethanol using a water bath.

Step 3: The leaf was then submerged in warm water.

Step 4: *The leaf was spread on a white tile.*

Step 5: *The leaf was flooded with iodine solution on the white tile.*

- (a) (i)** State the reason why the leaf was boiled in water.
..... [1]
- (ii)** Why was the leaf boiled in ethanol?
..... [1]
- (iii)** Give a reason why the leaf in ethanol was heated using a water bath.
..... [1]
- (iv)** State the colour and the texture of the leaf after boiling it in ethanol.
Colour: [1]
Texture: [1]
- (v)** Give a reason for placing the leaf in warm water in step 3.
..... [1]
- (vi)** Why was the leaf spread on a white tile in step 4?
..... [1]
- (vii)** After flooding the leaf with iodine solution, what colour changes were observed in the white patches and green patches?
White patch: [1]
Green patch: [1]

(b) What term is used to describe a leaf with green and white patches?

..... [1]

(c) Name the raw materials necessary for photosynthesis to take place.

.....
..... [2]

(d) What is the importance of photosynthesis to human beings?

.....
.....
..... [2]

(e) Name **two** organs in which the plants store the end products of photosynthesis.

.....
..... [2]

[Total: 16 marks]