THE SUCCESS PATH EXAMINATION COUNCIL

Paving the Way to Success

231/1 BIOLOGY (Theory)

FORM 4 PRE-MOCK 2026

MARCH 2026

Time: 2 hours

Paper 1

231/1
4992104

Name …… Admission Number ……..……..…

School ……....Class ……...……

Candidate's Signature …… Date ……

Instructions to candidates

(a) Write your name and admission number in the spaces provided above.

(b) Write the name of your school and sign in the spaces provided above.

(c) Answer all the questions in this question paper.

(d) All answers must be written in the spaces provided in the question paper.

(e) **This paper consists of 11 printed pages.**

(f) **Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.**

(g) **Candidates should answer the questions in English**.

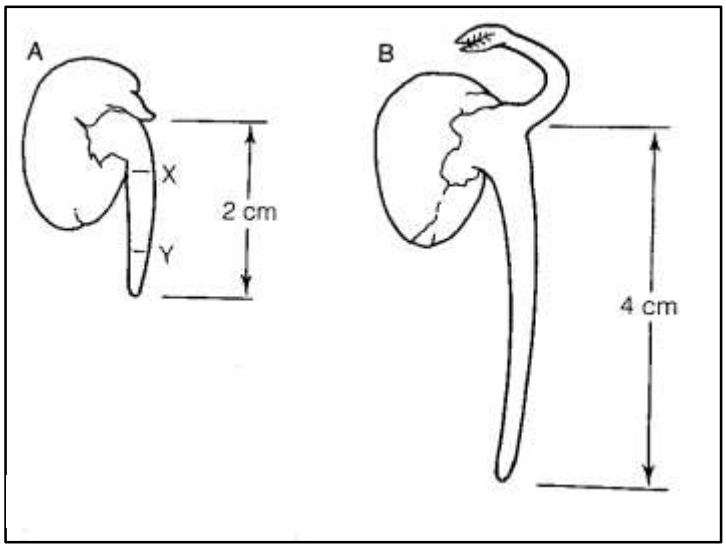
For Examiners' Use Only

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

18	19	20	21	22	23	24

TOTAL

1. The illustrations below show a germinating bean seed at the start (A) and after 3 days (B). Use it to answer questions that follow.



(a) Mark on B the positions of X and Y (1 mark)

(b) State ***two*** roles of water in germination (2 marks)

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2. (a) Explain why the number of red blood cells reduce when placed in distilled water but remains the same in salt solution (3 marks)

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(b) State any change that would be expected on the red blood cells placed in salt solution. (1 mark)

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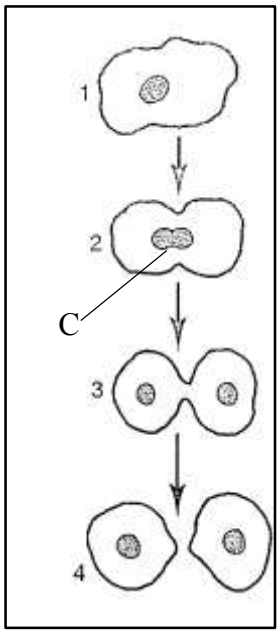
3. The illustration shows a kind of reproduction occurring in an organism



(a) Name the type of asexual reproduction shown by the illustration shown. (1 mark)

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(b) Give a ***reason*** for your answer in (a) above (1 mark)

.....

(c) What name is given to the division of structure C in the illustration above. (1 mark)

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(d) Apart from amoeba, name any other kind of organism that reproduces by a similar method as the one shown in the illustration. (1 mark)

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4. Students wanted to estimate the populations of elephants and squirrels in a 100m-by-100m piece of land.
   (a) What method would be suitable to estimate the population of:
      (i) Elephants (1 mark)

      .....

      (ii) Squirrels (1 mark)

      .....

(b) State any event that makes the estimated population of squirrels inaccurate (1 mark)

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5. Briefly describe why excessive ingestion of mercury or silver – arsenic compounds may lead to death of an animal. (3 marks)

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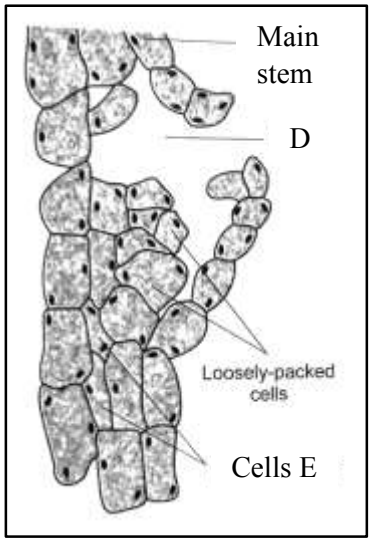
6. Below is an illustration of a respiratory surface found on the stem of woody plants



(a) Identify opening D (1 mark)

.....

(b) Explain one characteristic feature of cells E that adapt them to their function (1 mark)

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(c) What is the significance of the cells being loosely packed? (1 mark)

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7. (a) ***Distinguish*** between the roles of messenger RNA (mRNA) and transfer RNA (tRNA) in protein Synthesis. (2 marks)

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(b) State ***two*** advantages of genetically modified plants (2 marks)

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8. (a) Jaundice is a liver disorder characterized by yellowing of the membranes and skin. Describe how the yellowing comes about. (2 marks)

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(b) How does liver cirrhosis lead to;

(i) **Jaundice** (1 mark)

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(ii) **Indigestion** (1 mark)

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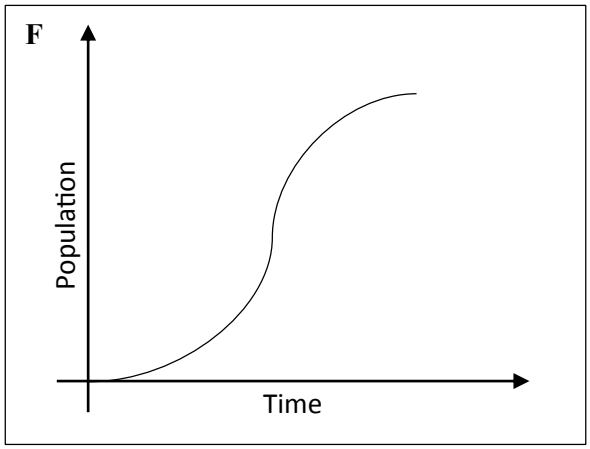
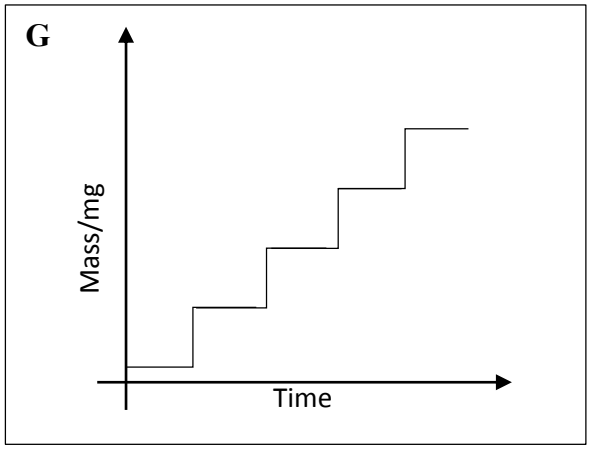
9. The illustrations below show two curves obtained after studying growth in arthropods and bacteria.





With a reason, which curve shows growth in:

(i) Arthropods (2 marks)

.....

.....

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(ii) Bacteria (2 marks)

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10. (a) State ***two*** reasons why colostrum is important for the baby (2 marks)

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(b) Milk let – down by lactating mothers is a reflex action, explain (1 mark)

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11. Given the following; a glass slide, cover slip, pair of forceps, onion leaf, iodine solution and distilled water, describe ***three*** steps to be followed before viewing onion cells on a microscope.
(3 marks)

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12. Briefly state the importance of anaerobic respiration in:
(a) **Baking industry** (1 mark)

.....

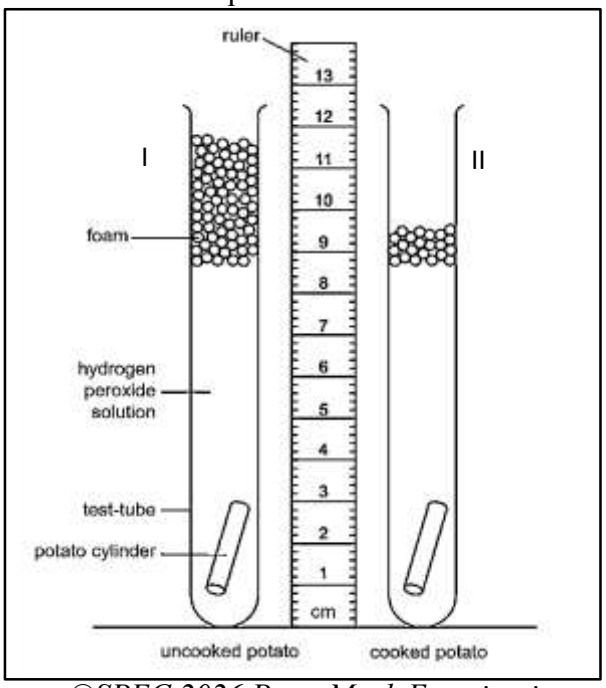
(b) **Agriculture** (1 mark)

.....

(c) **Dairy industry** (1 mark)

.....

13. Study the set ups below and answer the questions that follow.



(a) ***Account*** for the difference in the height of foam in test tubes I and II (3 marks)

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(b) State the importance of the reaction occurring in the set ups above in the human body (1 mark)

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14. State ***three*** adaptations of xerophytes that enable them conserve water (3 marks)

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15. (a) Name the *causative agent* of

(i) Pneumonia (1 mark)

.....

(ii) Whooping cough (1 mark)

.....

(b) How can the spread of tuberculosis be controlled? (2 marks)

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16. ***Fill in*** the table below appropriately (4 marks)

Type of waste excreted	Amount of water required	Habitat of organism
		Arid
Urea	Less	
	More	Aquatic

17. (a) State a difference between a housefly's wing and a bat's wing (1 mark)

Housefly's wing **Bat's wing**

....

....

(b) What name is given to structure like the wings in (a) above (1 mark)

.....

(c) Name the evidence of evolution that explains the origin of the differences of the wings (1 mark)

.....

18. (a) Proteins have both acidic and basic properties, hence are referred to as .....

This property enables them to react with non-proteinous compounds to form.....

proteins (2 marks)

(b) Explain why it is advisable to eat eggs when one has wounds (1 mark)

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19. Explain the significance of the following parts of the nephron with respect to habitats (4 marks)

Part	Aquatic	Desert
Loop of Henle	....	....
Glomeruli	....	....

20. How is gaseous exchange important to:

(i) Respiration (2 marks)

.....

.....

.....

(ii) Photosynthesis (1 mark)

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21. What do you understand by the term *heterozygous advantage* in relation to sickle – cell anaemia (2 marks)

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22. What is the ***role*** of the following parts of the male reproductive system:

(a) Epididymis (1 mark)

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(b) Cowper's glands (1 mark)

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(c) Glans – penis (1 mark)

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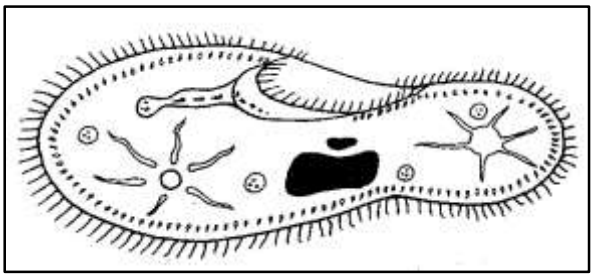
23. The microorganism below was observed through a microscope on a drop of pond water



(a) Classify the organism into its kingdom (1 mark)

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(b) Give a ***reason*** for your answer in (a) above (1 mark)

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24. How does geographical distribution of organisms lead to speciation? (3 marks)

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