MASENO SCHOOL

2025 MOCK EXAMINATION

Kenya Certificate of Secondary Education

231 / 1 - BIOLOGY (THEORY) **Thursday 17th July, 2025** **8.00 a.m. - 10.00p.m.**	 **Unique Identifier No.....** **Signature.....**

Instructions.

a) Write your Unique Identification Number then sign in the spaces above.
b) Answer ALL the questions in this paper.
c) All your answer must be written in the spaces provided in the question paper.
d) This paper consists of **12** printed pages.
e) Candidate should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
f) Candidates must answer the questions in English.

FOR EXAMINER'S USE ONLY

Questions	Maximum Score	Candidate's Score
1-28	80	

1. State how the following tools are used to collect specimen

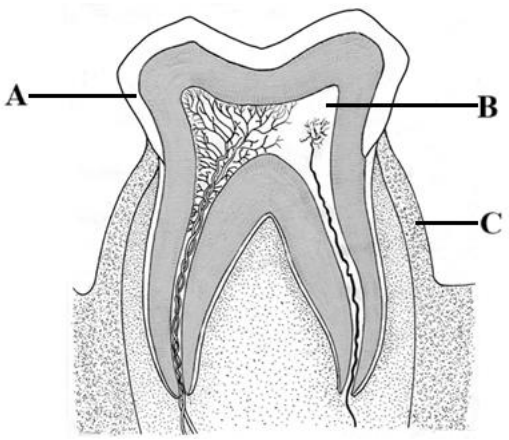
   (a) Pooter (1 mark)

   ……

   (b) A pair of forceps (1 mark)

   ……..

2. The figure below shows vertical section of a mammalian tooth. Examine it.



   (a) Name the parts labelled A and B

   A……(1 mark)

   C……(1 mark)

   (b) State one way in which part B is adapted to its function (2 marks)

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3. State two ways in which white blood cells offer immunity to the body (2 marks)

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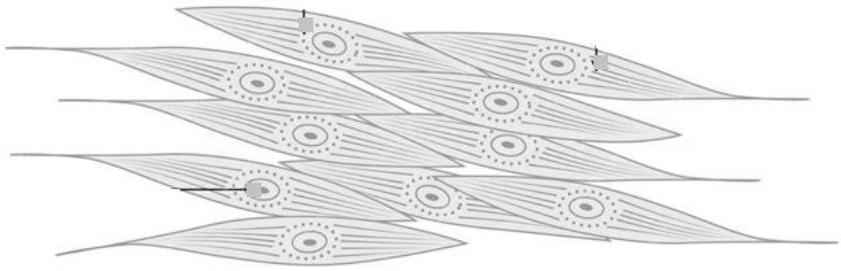
4. The diagram below shows a type of muscles found in human body. Study it



(a) Identify the type of muscle shown above (1 mark)

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(b) Give two reasons for answer in (a) above (2 marks)

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5. (a) What is the function of clips in the light microscope? (1 mark)

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(b) Explain why it is not advisable to use coarse adjustment knob with high power objective lens to view a specimen on a light microscope (2 marks)

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6. A student was found to have blood group B+. Identify:

(a) the antibody that is present in his plasma (1 mark)

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(b) two antigens present in his erythrocytes (2 marks)

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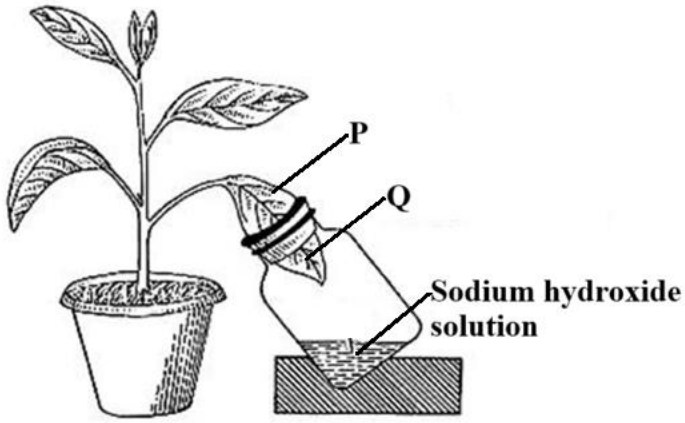
7. The set up below was used by students to investigate necessity of a certain environmental factor in photosynthesis. Study it



(a) Describe the role of sodium hydroxide in the experiment (2 marks)

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(b) Give the results obtained when the two portions of the leaf were subjected to starch test (2 marks)

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8. Identify any two structures of the skin involved in protection (2 marks)

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9. Name:

(a) the type of evolution that leads to formation of structures that perform the same function (1 mark)

……

(b) the type evolutionary structures formed by the type of evolution named in (a) above (1 mark)

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10. Explain

(a) Why donated blood should not be transfused after the third month of storage (1 mark)

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(b) How donated blood is prevented from clotting during storage period (1 mark)

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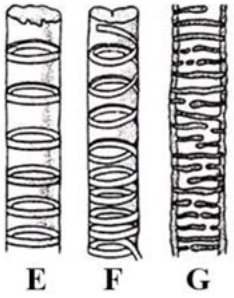
11. The diagrams below represent cells found in higher plants. Study them



(a) Identify the patterns of lignification in E and G

E…….(1 mark)

G……..…..(1 mark)

(b) Name one feature of above cells that cells that enhances capillarity (1 mark)

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12. Explain the role of light stage reactions in the opening of stomata (3 marks)

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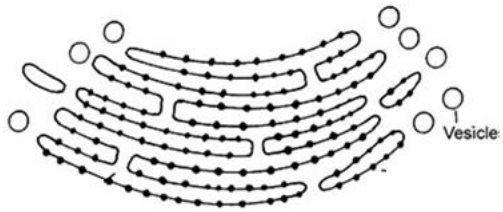
13. Below is a diagram of an organelle. Study it



(a) Identify the cell organelle shown above (1 mark)

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(b) State the function of the organelle identified in (a) above (1 mark)

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14. A farmer used ladybird to control aphids in his vegetable farm.

(a) Name this method of pest control (1 mark)

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(b) Give one advantage of using the above method to control pests (1 mark)

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15. During microscopy experiment, a student counted 8 cells under a light microscope using eye piece lens magnification and objective lens magnification of ×10 and ×40 respectively. If the diameter of the field of view was 5mm, calculate the actual length of one cell (3 marks)

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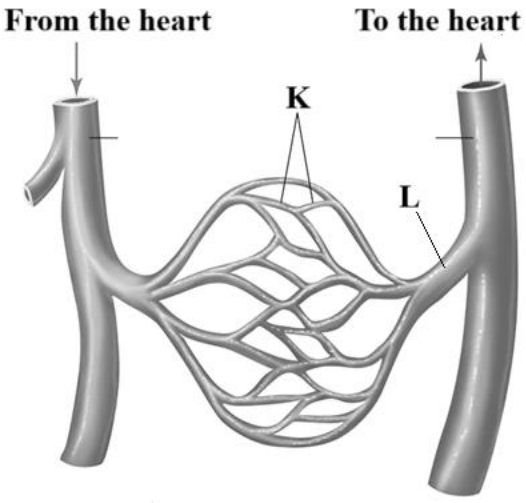
16. The diagram below shows the structural relationship between blood vessels in the body. Examine it.



(a) Identify the blood vessel labelled K and name the major process that occur in it

i) Blood vessel (1 mark)

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ii) Major process (1 mark)

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(b) Give the function of the fluid formed due to the process named in a(ii) above (1 mark)

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17. Name one species of Schistosoma that causes bilharzia (1 mark)

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18. Asthma is a respiratory disease that becomes more serious if the person suffering is exposed to cloudy and chilly weather. Explain (2 marks)

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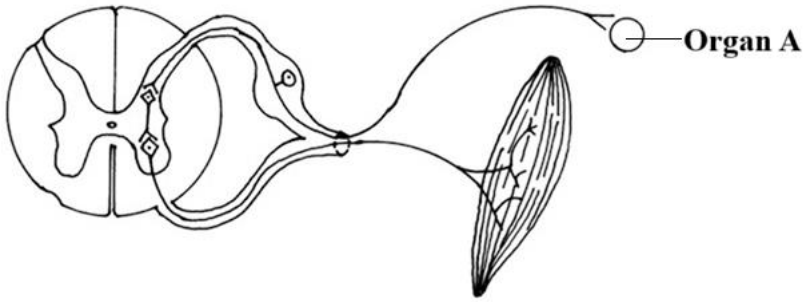
19. The diagram below illustrates a reflex arc. Study it



(a) Use an arrow to indicate the direction of flow of nerve impulse on the diagram (1 mark)

(b) Name the chemical substance responsible for nerve impulse transmission across the synapse (1 mark)

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(c) Name the two structures that are responsible for maintenance of body balance and posture with respect to gravity in organ A (2 marks)

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20. (a) Give two examples of insects that exhibit incomplete metamorphosis (2 marks)

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(b) Identify two hormones that regulate metamorphosis (2 marks)

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21. State two reasons why coverslip is used during microscopy (2 marks)

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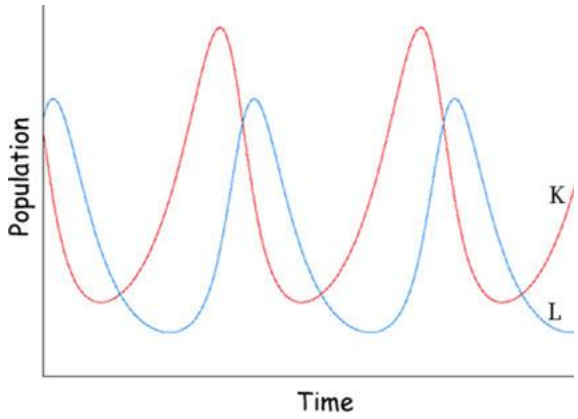
22. The graph below shows two relative numbers of two animals in an ecosystem over a period of time.



(a) Identify the type of biotic interrelationship between the two animals (1 mark)

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(b) Which curve represents the animal with higher biomass. Explain (2 marks)

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23. (a) Name the type of reproduction shown by the following organisms

i) Yeast (1 mark)

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ii) Plasmodium (1 mark)

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(b) Give one advantage and disadvantage of the type of reproduction stated in (a) above (2 marks)

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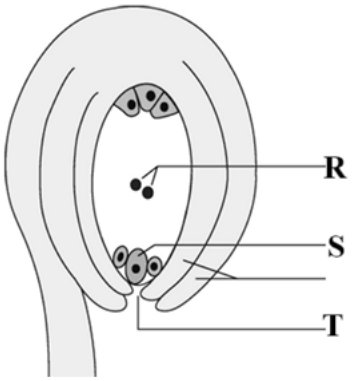
24. The diagram below shows a mature ovule.



(a) Describe the role of the cells labelled R and R during fertilisation (2 marks)

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(b) Name part labelled T and give its function (2 marks)

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25. The diagram represents a flower. Study it

(a) Identify the agent of pollination of the above flower (1 mark)

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(b) Give two reasons for your answer in (a) above (2 marks)

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26. In *Drosophila melanogaster*, the gene for eye colour is X-linked. Red eye colour trait is dominant over white eye colour trait. Find the probability of producing a white eyed male when a red eyed male was crossed with heterozygous red eyed female. Use letter **R** to represent the gene for red eye colour (5 marks)

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27. Name the method by which plants excrete the following wastes

(a) Caffein (1 mark)

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(b) Resins (1 mark)

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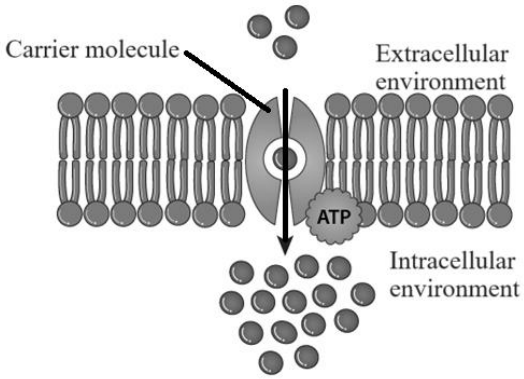
28. The diagram below illustrates a physiological process. Study it



(a) Identify the physiological process illustrated above (1 mark)

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

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(c) Explain the role of the above physiological process in nerve impulse transmission (1 mark)

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