

NAME.....CLASS.....  
INDEX NO.....DATE: .....  
ADM NO.....

231/1  
BIOLOGY P1  
THEORY  
JUNE 2023  
TIME: 2 HOURS

**KASSU JET EXAMINATIONS**  
**Kenya Certificate of Secondary education**  
**Biology Paper I**  
**June 2023**  
**2 Hours**

**Instructions**

- Write your name, class and admission number in the space provided above.
- Write the date of the examination in the space provided above.
- Answer all the questions in the spaces provided.

**For Examiner's use only**

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
<b>1 – 26</b>	<b>80</b>	

*This paper consists of 11 printed pages.*

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

1. One of the function of the nucleus is storage of hereditary material also known as gene.

(a) What is a gene. (1mks)

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.....

(b) State the three functions of DNA. (3mks)

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2. State any two species of schistosoma that transmit bilharzia. (2mks)

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3. a) State three importance of photosynthesis in nature. (3mks)

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b) How does nutrition differ in plants and animals? (1mk)

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4. (a) Identify the organelle shown below (1mk)



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b. How is the organelle you have identified in (a) above suited to its function? (2mks)

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5. During a practical class, four students estimated the field of view to be 3.5mm. Using the low power objective, they observed spirogyra cells across the same field of view and counted 8 cells. Calculate the size of each cell and give your answer in micrometer. (3mks)

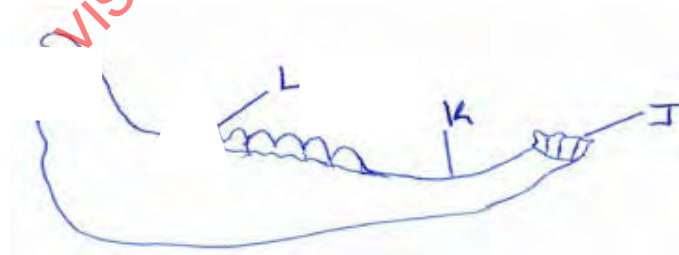
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6. a) Explain what happens when a wilting plant is watered. (2 marks)

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(b) Name a support tissue in plants thickened with;

(i) Cellulose. (1 mark)

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(ii) Lignin. (1 mark)

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7. The diagram below represents a mammalian jaw



(a) State the mode of feeding for the mammal. (1 mark)

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8. Describe three adaptations for this mammal from jaw to its mode of feeding. (3 marks)

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(c) Where are the following structures found along the mammalian digestive tract? (2 marks)

(i) Pyloric sphincter

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(ii) Crypt of Lieberkuhn

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9. Explain how crops grown along roads can be a source of lead poisoning to human beings. (2 marks)

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10. a) State the characteristics that can separate the following organisms into respective classes; millipedes, tsetsefly and spider. (3marks)

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b) State the kingdom whose members have a cell wall made up of mulllein. (1 mark)

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11. The diagrams below show organs obtained from members of Angiospermatophyta

A

B



To which classes do the plants from which the organs were obtained belong? (2marks)

A .....

B .....

a) Small insect-eating birds are feeding on the caterpillars and caterpillars are eating the leaves of a tree. A pair of sparrow hawks is hunting for small birds to feed their young.

(i) Represent the information on a food chain. (1 mark)

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(ii) Draw a pyramid of numbers of the above chain. Give the organisms at each trophic level.

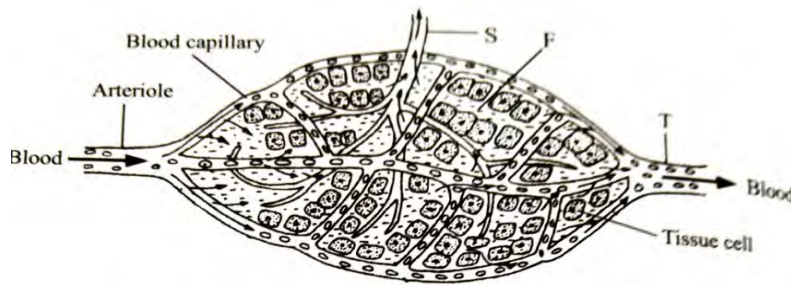
(2 marks)

12. Give two ways by which prey are adapted to escaping predators (2marks)

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13. The diagram below shows the site where exchange of substances takes place in the mammalian circulation.



a) Name the vessel labelled **T** [1mark]

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b) Name the fluid labelled **F** and state its importance [2marks]

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c) Explain the mechanism of formation of the liquid named in (b) above [3marks]

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14. Briefly give clear explanations to the statements below. [2 marks]

a) In mammals haemoglobin is confined to erythrocytes. Give one advantages of this

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b) People living in high altitude areas have a higher erythrocyte count and more haemoglobin than people living in low altitudes. Suggest a reason for this adaptations

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15. Color blindness is a sex-linked trait controlled by a recessive gene b if a mother is carrier and father is normal what is the chance that their son will be colour blind? Show your working. (4mks)

16. a) State the role of a generative cell during fertilization in flowering plants. (2mks)

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b). State two differences between prophase and prophase I. (2mks)

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17. Using the named parts of a flower in the table below. State the differences between insect pollinated flower and wind pollinated flower. (3marks)

Part	Insect pollinated	Wind pollinated
Pollen grain		
Stigma		
Anthers		

18. (a) Name the part of the eye in which the light sensitive cells are located. (1mark)

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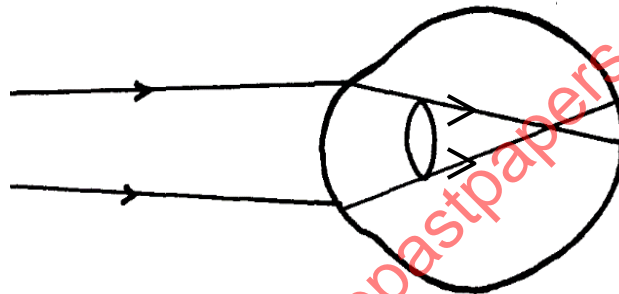
(b) List the **two** types of sensory cells found in the part named in (a) above (2 marks)

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19. State the function of conjunctiva. (1 mark)

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20. The diagram below shows the position of an image formed in a defective eye:-



(a) Name the defect (1 mark)

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(b) How can the defect be corrected. (1 mark)

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21. Name the disorder characterized by the following. (2marks)

(a) Having extra somatic chromosome

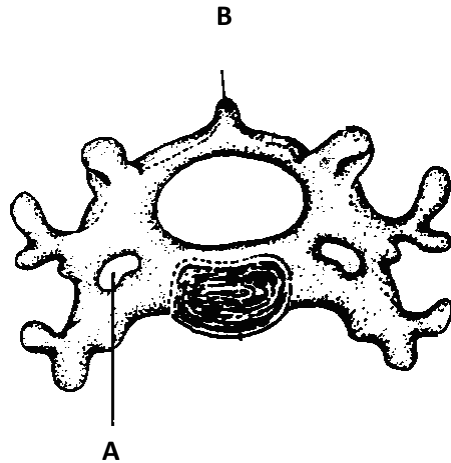
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(b) Missing one of the sex chromosome

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22. Study the figure below then answer questions that follow.



(a) Identify the bone on the diagram above. (1mk)

.....

(b) Name the part labelled **A** and **B**. (2mks)

A .....

B .....

23. Name the type of joints found in the following regions. (2 marks)

(a) The anterior end of atlas.

.....

(b) The articulation of glenoid cavity and head of humerus bone.

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24. A boy who is learning how to swim in sea water accidentally drinks a lot of sea water. Explain the effect this will have on his kidneys. (3mks)

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25. (a) Name the fluid that is produced by sebaceous glands. (1mk)

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(b) State **two** functions of sweat on the human body.

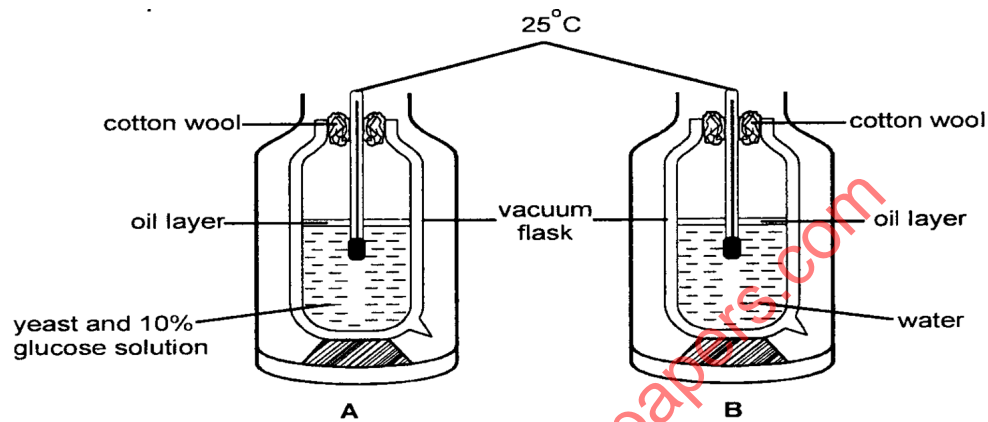
(2mks)

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26. Two flasks were set up as shown below.



a) What is the aim of the investigation?

(1mark)

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b) Explain why the vacuum flasks were used instead of conical flasks.

(1mark)

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c) What is expected of the thermometer reading after 2 hours in A?

(2marks)

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27. Explain what happens when there is oxygen debt in human muscles

(3mks)

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