

Name ..... Index Number .....

231/1  
BIOLOGY  
Paper 1  
Nov. 2016  
2 hours

Candidate's Signature .....

Date .....



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**Kenya Certificate of Secondary Education**

**BIOLOGY**

**Paper 1**

**2 hours**

**Instructions to candidates**

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of the examination in the spaces provided above.
- (c) Answer all the questions in this question paper.
- (d) All answers must be written in the spaces provided.
- (e) This paper consists of 11 printed pages.
- (f) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (g) Candidates should answer the questions in English.

**For Examiner's Use Only**

Question	Maximum Score	Candidate's Score
1-20	80	



*Answer all the questions in the spaces provided.*

1. (a) State **two** ways in which the muscles of the mammalian heart are special. (2 marks)
- .....
- .....
- .....
- (b) Name the type of muscles found in the following organs. (2 marks)
- Stomach .....
- Bone .....
2. Why are plants able to accumulate most of their waste products for long? (2 marks)
- .....
- .....
- .....
3. State the importance of tactic responses among members of Kingdom Protista. (2 marks)
- .....
- .....
4. (a) Name **one** defect of the circulatory system in humans. (1 mark)
- .....
- .....
- (b) State **three** functions of blood other than transport. (3 marks)
- .....
- .....
- .....
- .....

5. State the economic importance of anaerobic respiration in plants. (1 mark)

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6. Explain continental **drift** as evidence of evolution. (3 marks)

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7. Explain how the following prevent self pollination.

- (i) Protandry (1 mark)

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- (ii) Self-sterility (1 mark)

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8. State **three** functions of Golgi apparatus. (3 marks)

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9. (a) Name **two** structures of gaseous exchange in aquatic plants. (2 marks)

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(b) What is the effect of contraction of the diaphragm muscles during breathing in mammals. (3 marks)

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10. (a) State **two** disadvantages of sexual reproduction in animals. (2 marks)

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(b) State **two** functions of a placenta. (2 marks)

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11. Name **two** benefits that a parasite derives from its host. (2 marks)

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12. Other than using a quadrat give **two** methods that can be used to estimate the population of grass. (2 marks)

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13. (a) State **two** factors that affect enzymatic activities. (2 marks)

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- (b) Explain how **one** of the factors stated in (a) above affects enzymatic activities. (1 mark)

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14. Give **three** factors that determine the amount of energy a human being requires in a day. (3 marks)

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15. (a) What is seed dormancy? (1 mark)
- .....
- .....
- .....
- (b) Name a growth inhibitor in seeds. (1 mark)
- .....
- .....
16. State **one** use of each of the following excretory products of plants. (2 marks)
- (i) Colchicine
- .....
- .....
- (ii) Papain
- .....
- .....
17. State the name given to the study of:
- (i) The cell (1 mark)
- .....
- (ii) Micro-organisms (1 mark)
- .....
18. Distinguish between haemolysis and plasmolysis. (2 marks)
- .....
- .....
- .....

19. Explain why it is not advisable to be in a poorly ventilated room with a burning charcoal stove. (3 marks)

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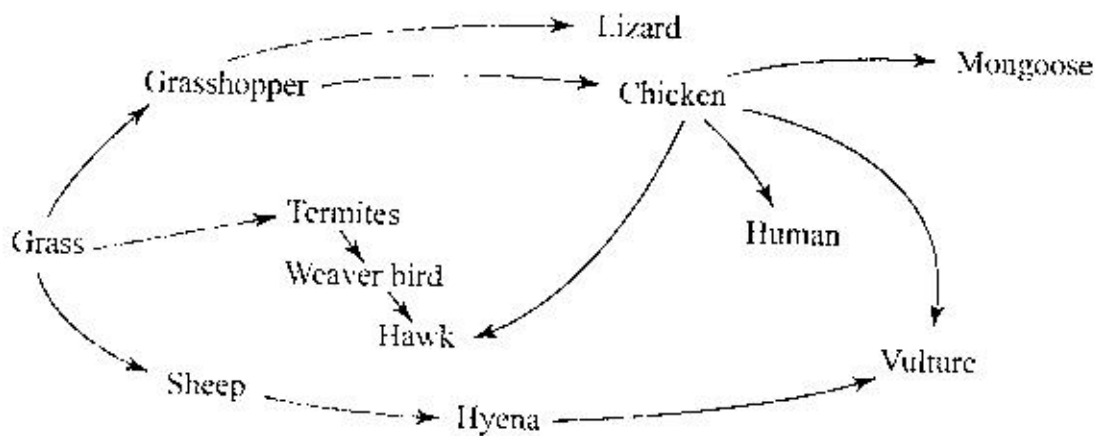
20. State three factors that contribute to the deceleration phase in the population curve of an organism. (3 marks)

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21. The figure below illustrates a food web in a certain ecosystem.



From the food web:

- (a) Draw the shortest food chain (1 mark)
- (b) Identify the organism with the highest:
- (i) number of predators (1 mark)
- .....
- (ii) biomass (1 mark)
- .....

22. State **three** characteristics of the class Crustacea. (3 marks)

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23. (a) Name **one** salivary gland in humans. (1 mark)

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(b) State **two** functions of saliva. (2 marks)

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24. How does nutrition as a characteristic of living organisms differ in plants and animals. (2 marks)



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25. Distinguish between diffusion and osmosis. (2 marks)

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26. State the functions of the following parts of a microscope. (2 marks)

(a) Objective Lens

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(b) Diaphragm

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27. (a) What is single circulatory system? (1 mark)

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(b) Name an organism which has a single circulatory system. (1 mark)

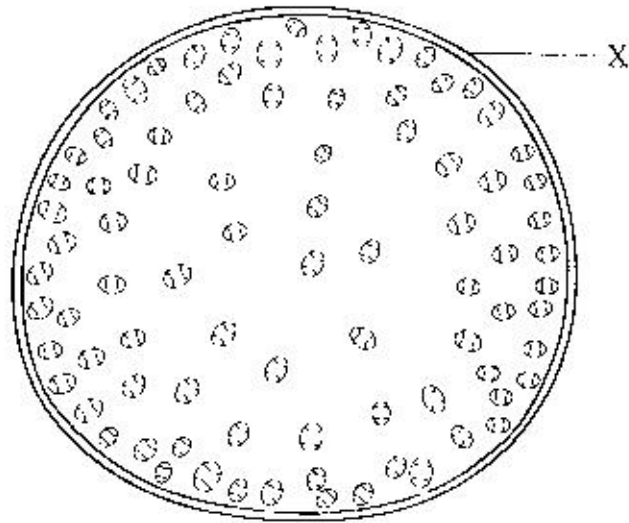
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(c) Name the opening to the chamber of the heart of an insect. (1 mark)

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28. The diagram below shows a transverse section of a plant organ.



- (a) Name the plant organ from which the section was obtained. (1 mark)

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- (b) (i) Name the class to which the organism from which section was obtained belongs. (1 mark)

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- (ii) Give a reason for your answer in b (i) above. (1 mark)

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29. (a) State a characteristic that is common to all cervical vertebrae. (1 mark)

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- (b) Name two tissues in plants that provide mechanical support. (2 marks)

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30. State two advantages of hybrid vigour. (2 marks)

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