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

Candidate's Signature .....

Date .....

231/1
BIOLOGY
Paper 1
Nov. 2016
2 hours

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)

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(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)

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3. State the importance of tactic responses among members of Kingdom Protista. (2 marks)

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4. (a) Name **one** defect of the circulatory system in humans. (1 mark)

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(b) State **three** functions of blood other than transport. (3 marks)

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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)

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(b) Name a growth inhibitor in seeds. (1 mark)

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16. State **one** use of each of the following excretory products of plants. (2 marks)

(i) Colchicine

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(ii) Papain

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17. State the name given to the study of:–

(i) The cell (1 mark)

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(ii) Micro-organisms (1 mark)

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18. Distinguish between haemolysis and plasmolysis. (2 marks)

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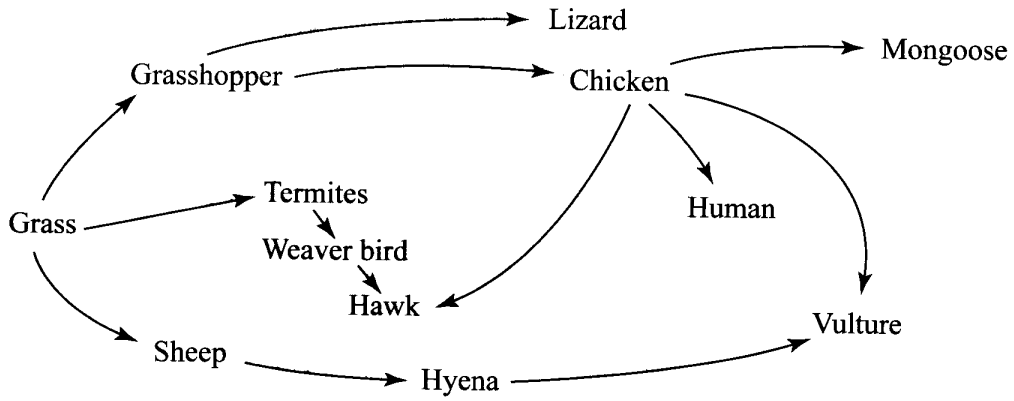
21. The figure below illustrates a food web in a certain ecosystem.



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)

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(ii) biomass (1 mark)

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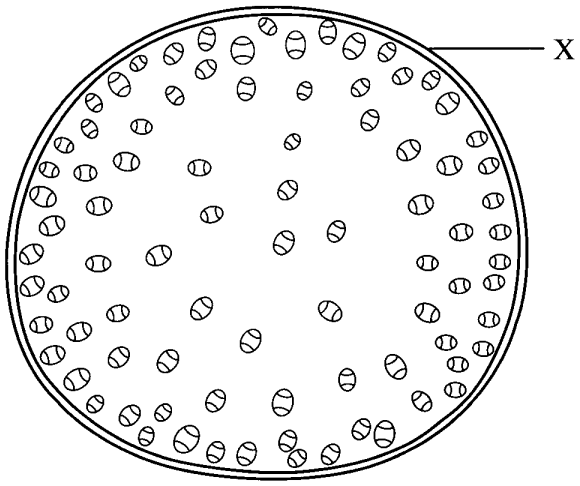
28. The diagram below shows a transverse section of a plant organ.



(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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