

Name

Index No.

School

Candidates Sign:

Date:

231/1

BIOLOGY

(THEORY)

Paper 1

July / August – 2008

Time: 1 ½ Hours

BONDO – RARIEDA DISTRICTS SECONDARY SCHOOLS EVALUATION EXAMINATION - 2008

Kenya Certificate of Secondary Education (K.C.S.E)

231/1

BIOLOGY

(THEORY)

Paper 1

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INSTRUCTIONS TO CANDIDATES

- Answer ALL the questions in this question paper in the spaces provided.

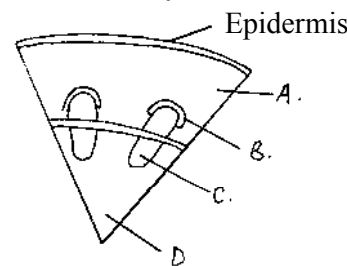
FOR EXAMINERS USE ONLY

Question	Maximum Score	Candidate's Score
1 - 28	80	

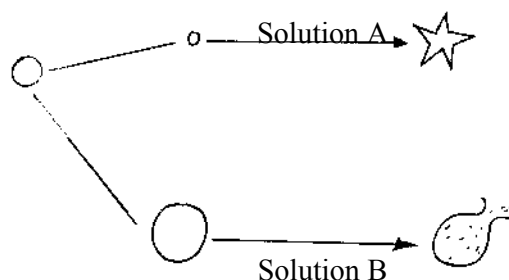
This paper consists of 9 printed pages.

*Candidates should check the question paper to ensure that all the
Pages are printed as indicated and no questions are missing.*

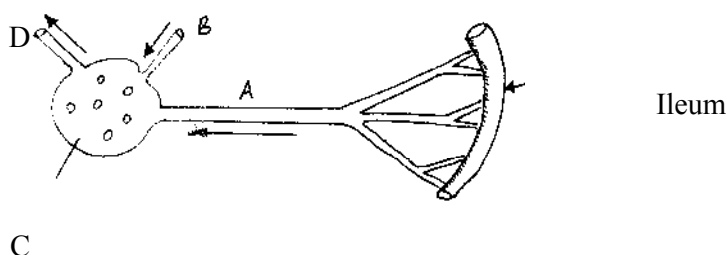
1. a) Name the organelle in a cell which controls movement in and out of the cell. (1 mk)
b) State the effect on the organelle named above if subjected to high temperature. (2 mks)
2. Name some three density – dependent factors in an ecosystem. (3 mks)
3. State two functions of mucus produced along the alimentary canal. (2 mks)
4. State two effects of accumulation of lactic acid in muscle tissues during vigorous exercise. (2 mks)
5. Give two examples of adaptive radiation in animals. (2 mks)
6. If a plant is grown in darkness for a prolonged duration it dies. Explain why it dies. (2 mks)
7. Name three types of placentation found in fruits. (3 mks)
8. List two differences between class Arachida and Insecta. (2 mks)
9. State two functions of each of the following:-
a) Exoskeleton in insects. (2 mks)
b) Endoskeleton in mammals. (2 mks)
10. State three adaptations of the alveoli to its functions. (3 mks)
11. The diagram below shows a section of a dicotyledonous stem.



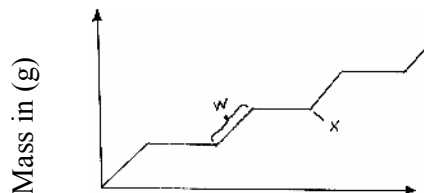
- Name the tissues marked A, B, C and D and state the function of each. (4 mks)
12. Explain how sweat glands cause cooling of the body. (1 mk)
 13. Give three events that take place in a flower after fertilization. (3 mks)
 14. Name the type of response exhibited by the following:-
(i) A pollen tube growing towards embryo sac. (1 mk)
(ii) Maggots moving from the lit side of a boiling tube to the side pointed black. (1 mk)
 15. State three adaptations of the thoracic vertebra to its functions. (3 mks)
 16. An adult elephant flaps its ears twice as much as it calves in order to cool its body when it's hot. Explain. (2 mks)
 17. The figure below shows the results obtained when red blood cells are put in different solutions:-



- a) What is the name given to the process that occurs when the cell is put into solution B. (1 mk)
- b) Compare the results obtained when the cell is put in solution A to the result that would be obtained if plant cell was put in same solution. (3 mks)
18. The dental formula below was written by a student after observing a skull of an animal.
- $$I \frac{0}{3} \quad C \frac{0}{1} \quad Pm \frac{3}{3} \quad M \frac{3}{3}$$
- (i) How many teeth does the animal have. (1 mk)
- (ii) State the mode of feeding of the animal (1 mk)
- (iii) Give a reason for your answer in (ii) above. (1 mk)
19. Explain why pregnant women excrete less urea compared to other women. (2 mks)
20. The diagram below shows part of a circulatory system. The arrows indicate direction of most of blood.

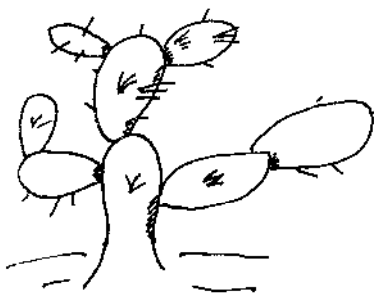


- a) Name the blood vessels labeled A and B. (2 mks)
- A:
- B:
- b) Explain why it is important to transport food substances to organ C before being circulated to the rest of the body. (2 mks)
21. The equation below shows respiration for certain food substances. Study it and answer the questions:-
- $$2C_5H_9O_6 + 145O_2 \longrightarrow 102 CO_2 + 98H_2O$$
- a) (i) Calculate the respiratory quotient (RQ). (2 mks)
- (ii) Suggest the possible food substance. (1 mk)
- b) State the significance of the RQ value of an organism to a physiologist. (2 mks)
22. The graph below represents the growth of animals in a certain phylum.

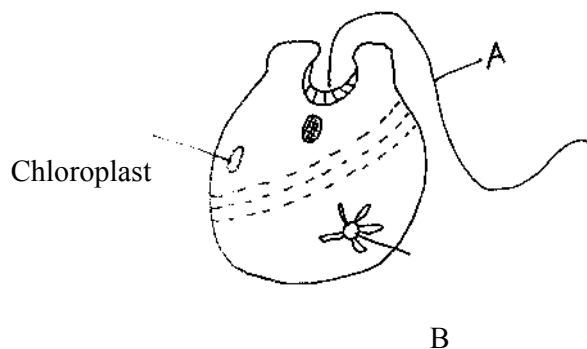


- a) Name the type of growth pattern shown on the graph. (1 mk)
- b) Identify the process represented by X. (1 mk)
- c) Name the hormone responsible for the process in (b) above. (1 mk)

23. Observe the diagram and answer the questions that follow.



- a) Name the habitat of the plant. (1 mk)
 - b) State two adaptations of the plant to its habitat, (2 mks)
24. Name three limiting factors that affect the rate of photosynthesis. (3 mks)
25. a) What are vestigial structures (1 mk)
- b) Name two examples of vestigial structures in men. (2 mks)
26. The diagram below shows the base sequence of part of a nucleic acid strand.
- T – T – A – G – C – T – G – A
- a) Giving a reason state whether it is part of a DNA or an RNA strand. (1 mk)
 - b) Show the complementary R.N.A. strand. (1 mk)
27. State two characteristics of a meristematic cell. (2 mks)
28. The diagram below represents an organism in the lower levels.



- a) (i) In which Kingdom does the organism belong. (1 mk)
- (ii) Give a reason for your answer in a (i) above. (1 mk)
- b) Name the structures labeled A and B. (2 mks)
- c) What is the significance of part labelled B. (1 mk)

