

NAME:.....

INDEX NO.

SIGNATURE:

231/1

BIOLOGY

Theory

Paper 1

March/April, 2011

Time: 2 Hours

MOKASA JOINT EVALUATION EXAMINATION

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

231/1

Biology

Paper 1

March/April, 2011

Instructions To Candidates

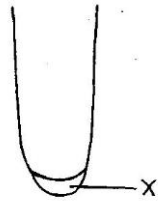
Answer all the questions on the spaces provided.

FOR EXAMINER'S USE ONLY

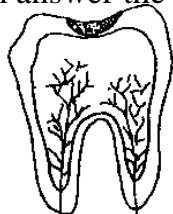
Question	Maximum score	Candidate's score
1-30	80	

This paper consists of 4 printed pages.

1. (a) Name the building blocks of a nucleic acid. (1 mk)
- (b) The building blocks named above consists of three molecules linked together. Name them. (3 mks)
2. The diagram below represents regions of a root tip.



- (a) Name two regions above X in ascending order. (2 mks)
- (b) State the function of the part labeled X. (1 mk)
3. Name the:
 - (a) Material that strengthens xylem tissue. (1 mk)
 - (b) Tissue that is removed when the bark of a dicotyledonous plant is ringed. (1 mk)
4. (a) Define metamorphosis (1 mk)
- (b) State two importance of metamorphosis. (2 mks)
5. State three limitations of fossil records as evidence of evolution. (3 mks)
6. Distinguish between taxonomy and classification. (2marks)
7. What relationship is there between pulse rate and heart beat. State your reasons. (2 mks)
8. State two types of granulocytes formed in the bone marrow. (2 mks)
9. Apart from having common features list two distinguishing features of Diplopoda from Chilopoda. (2 mks)
10. Name the spore bearing structure in the division pteridophyta. (1 mk)
11. Give three distinguishing characteristics of monera. (3 mks)
12. What is a codon? (1 mk)
13. The development of a certain dental disease is represented below. Study it carefully then answer the questions that follow.

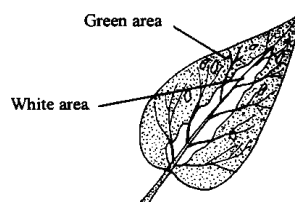


At Start



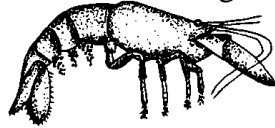
At the End

- a) Identify the dental disease illustrated. (1mark)
- b) What causes the dental disease illustrated above? (2marks)
- c) Other than the disease illustrated above, name another dental disease caused by lack of massage of gums. (1mark)
14. In an experiment to investigate a certain factor necessary for photosynthesis, a leaf shown below was used.



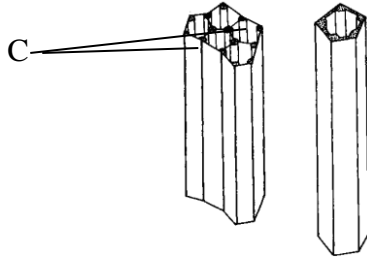
- d) What term is used to describe such a leaf? (1mark)
- e) In the space provided below, sketch the expected observation when starch test is carried on the leaf. (2marks)
- f) Explain why a leaf is boiled in hot water while testing for starch. (1mark)

15.a) Identify the type of skeleton found in the organism shown below. (1mark)



b) Explain two functions of this type of skeleton. (2marks)

16.a) Identify the plant support structure illustrated below. (1mark)



b) i) Name the part labelled C. (1mark)

ii) State a significance of movement in plants. (2 marks)

17.a) Name a nitrogenous excretory substance produced by marine fish in addition to urea.

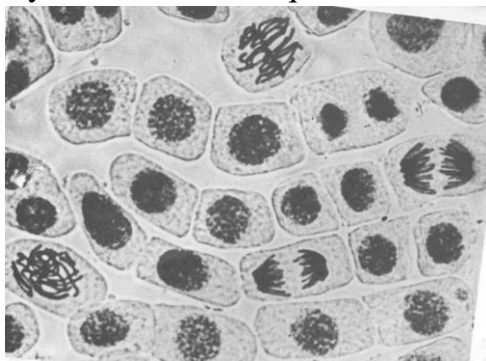
b) Explain how the mammalian body deals with excess amino acids. (3marks)

18. State ONE economic importance of the following plant excretory products.

(a) Papain (1mark)

(B) Gum Arabica. (1mark)

19. The figure below represents a micrograph of cells undergoing cell division. Study it carefully then answer the questions that follow.



a. Identify the stages represented by the letters Z and Y. (2marks)

b. State two reasons to explain why a young onion (*Allium cepa*) root tip is ideal for experiments to observe stages of divisions shown in micrograph. (2marks)

20. Apart from the destruction of the tender blood vessels of the foetus if the two blood systems of the mother and foetus were to mix directly, suggest three other effects that are likely to occur. (3marks)

21. Define the following terms:

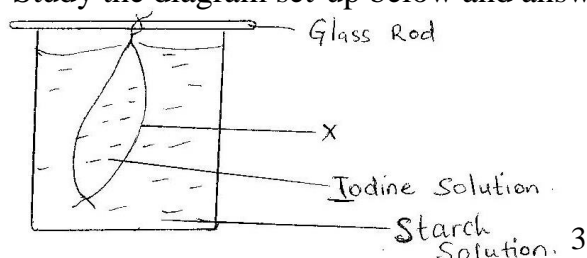
(a) Ecology (1 mk)

(b) Population Y (1 mk)

(c) Carrying capacity (1 mk)

22. Give two reasons why the energy flow from one trophic level to the next in an ecosystem is not 100% efficient. (2 mks)

23. Study the diagram set-up below and answer the questions that follow.



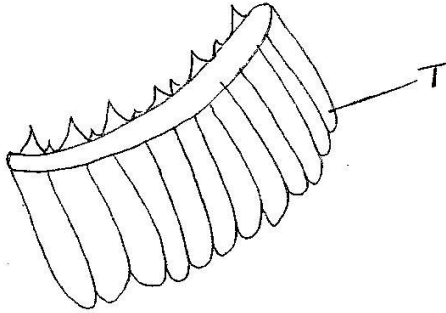
- (a) Name the structure X. (1 mk)
- (b) What would the structure X above represent in a living animal cell. (1 mk)
- (c) State the observation made in the starch solution at the end of the experiment. (1 mk)

24. Describe the differences between simple reflex action and condition reflex action. (3 mks)

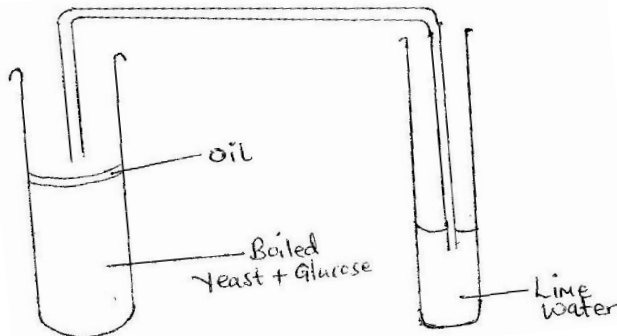
Simple reflex action	Conditioned reflex action

25. Describe the appearance of erythrocytes when placed in distilled water. (3 mks)

26. The structure below was extracted from a bony fish.



- (a) Identify the structure. (1 mk)
 - (b) Explain how the part labelled T is adapted to its function. (2 mks)
27. Name the gaseous exchange structures in terrestrial plants. (2 mks)
28. Study the diagram below and answer the questions that follow.



- (a) State the expected observation after 40 minutes. (1 mk)
 - (b) Explain the observation in (a) above. (2 mks)
29. Define the following terms.
- (a) Depolarisation (1 mk)
 - (b) Effector (1 mk)
 - (c) Receptor (1 mk)