

Name:Index no

School:Candidate's sign

Date:

231/1
BIOLOGY
PAPER 1(THEORY)
SEPTEMBER 2022
TIME: 2 HOURS

**LONDIANI SUB-COUNTY JOINT EVALUATION
EXAMINATION**
Kenya Certificate of Secondary Education (K.C.S.E)

Biology
Paper 1
(Theory)

INSTRUCTIONS TO CANDIDATES:

- Write your **name, index number and school** in the spaces provided.
- **Sign** and write **date** of examination in the spaces provided above
- Answer **all** the questions.

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1- 28	80	

This paper consists of 9 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing.

1. What is meant by the following terms?

(a) Niche

(1mark)

.....

(b) Ecology

(1mark)

.....

2. What changes would occur to a marine amoeba species if it was transferred into a fresh water pond?

(2marks)

.....

.....

3. (a) State **one** function of cilia in organisms.

(1mark)

.....

(b) Name **two** parts of the human body which have cilia.

(2marks)

.....

.....

4. In an experiment, it was found that when maggots were exposed to light, they moved to dark areas.

(a) Name the type of response exhibited by the maggots.

(1mark)

.....

(b) What is the survival values of the response in (a) above to the maggots?

(1mark)

.....

5. How is the alveolus of a mammal adapted for gaseous exchange?

(3marks)

.....

.....

.....

6. (a) What are vestigial structures?

(1mark)

.....

(b) State **one** major importance of convergent evolution to living organisms.

(1mark)

.....

(c) Why is Lamarck's theory not popular with scientist?

(1mark)

.....

7. Explain the meaning of the following terms

(1mark)

(i) Phenotype

.....

(ii) Test cross

(1mark)

.....

8. State the role of intervertebral discs

(1mark)

.....

9. State the adaptations of the following parts of the eye to its function.

(a) Choroid

(2marks)

.....

.....

(b) Retina

(2marks)

.....

.....

10. A flower was found to have the following characteristics

- Inconspicuous petals
- Long feathery stigma
- Small light pollen grains

(a) What is the likely agent of pollination of the flower?

(1 mark)

.....
 (b)What is the significance of the long feathery stigma in the flower (1 mark)

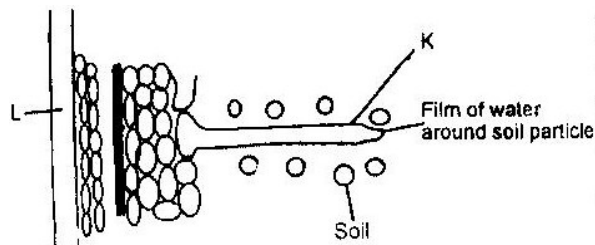
.....
 11. a) A student visiting a game park observed an adult elephant flapping its ears twice as much as its calf in order to cool its body when it is hot. Explain (2marks)

.....

 b) Explain why some desert animals excrete uric acid rather than ammonia. (2 marks)

.....

12. The diagram below represents the pathway of water from soil into the plant.



a) Name the structures labeled K and L
 K.....
 L..... (2marks)

b) Name the process by which mineral salts enter into the plant (1 mark)

.....
 13 .a) How is support attained in herbaceous plants? (3marks)

.....

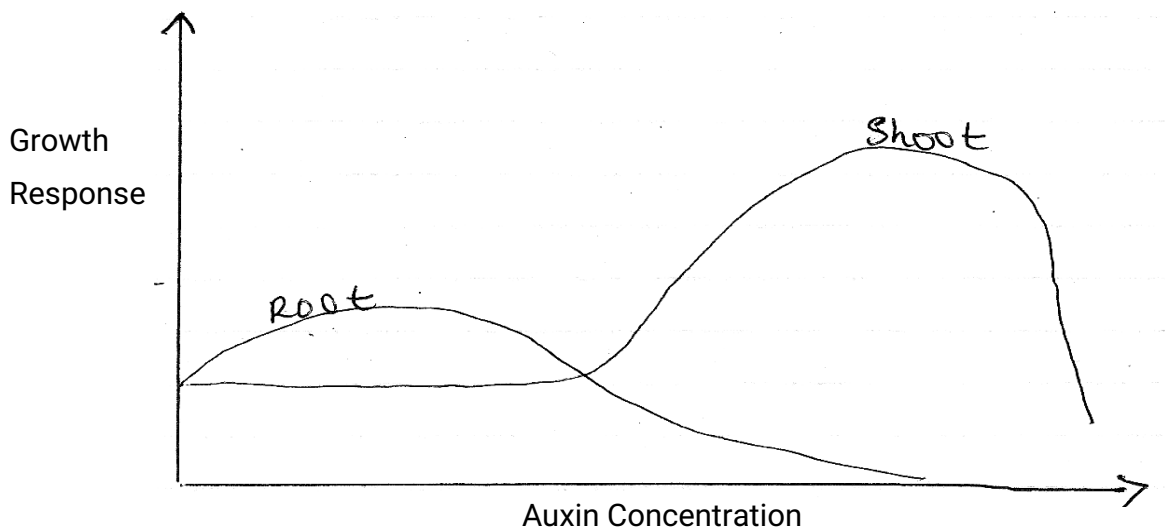
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b) Name **two** tissues which are thickened with lignin.
(2marks)

.....

.....

14. The diagram below shows the difference in growth response to varying hormone concentration by root and shoot.



What is the effect of increasing auxin concentration on:

(i) Roots (1mark)

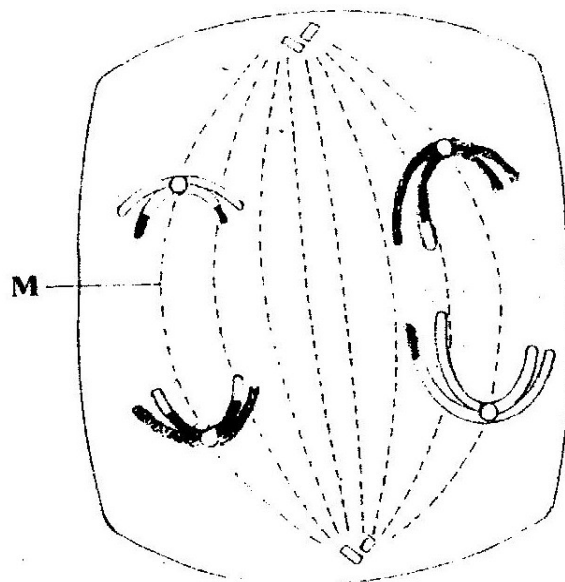
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(ii) Shoot

(1mark)

.....

15. The diagram below represents a stage during cell division



(a) (i) Identify the stage of cell division

(1 mark)

.....

reasons for your answer in (a) (i) above

(ii) Give two

(2 marks)

.....
.....

(b) Name the structures labeled M (1 mark)

.....

16. State one function of revolving nose piece in light microscope (1marks)

.....
.....

17. Construct a step in a dichotomous key using two animals one with two pairs of legs and the other with four pairs of legs. (2marks)

.....
.....

18. Explain how the following factors determine the daily energy requirement in human:

(a) Age (1 mark)

.....
.....

(b) Occupation (1 mark)

.....
.....

19. Explain how drooping of leaves on a hot sunny day is advantageous to plant. (2marks)

.....
.....

20. Name the organism that;

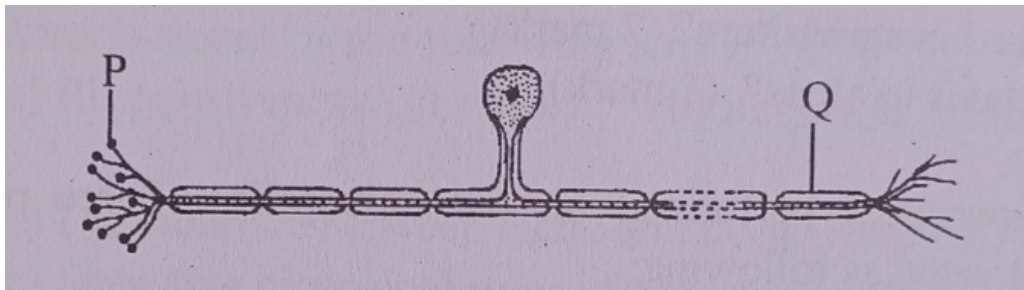
i) Causes malaria. (1mark)

.....
ii) Transmits malaria.

(1mark)

.....
.....
21. State the two major components of the nervous system.
(2marks)

.....
22. The diagram below represents a neurone



i) Name the neurone.
(1mark)

.....
ii) Name the parts labelled P and Q.

(2marks)

P.....

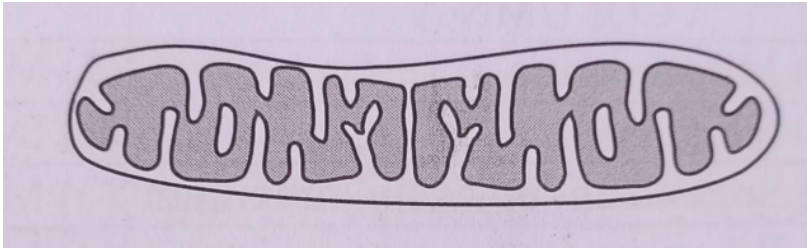
Q.....

b) State the function of the sensory nerve endings. (1mark)

.....
.....
23. Give four principles used in binomial nomenclature. (4marks)

.....
.....
.....
.....
24. Name the structures that occur in plant cells but not in animal cells. (2marks)

.....25. The diagram below show the structure of an organelle that is found in most cells.



a) Name the organelle. (1mark)

.....

b) What is the main function of the organelle? (1mark)

.....
.....

c) What is the importance of the infoldings in the inner membrane? (1mark)

.....
.....

d) List the membrane that a molecule must pass through as it moves from the external medium matrix of the organelle. (2marks)

.....

.....e) Give two examples of the cells where you would expect to find many organelles. (2marks)

.....
.....

26 a). Name the products of the light reaction in photosynthesis. (2marks)

.....
.....

b) Explain why insectivorous plants such as Drosera species trap and digest nitrogenous compounds. (2marks)

.....
.....

27. An individual is of blood group B Positive;

a) Name the antigens in individual's blood. (1mark)

.....

b) Give the reason why the individual cannot receive blood from group A donor. (1mark)

.....

28 a) Name the type of respiration that is most efficient. (1mark)

.....

b) Give reasons for your answer in (a) above. (1mark)

.....

.....

c) Explain why short distance runners breathe quickly and deeply at the end of a race. (2marks)

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