

231/1
BIOLOGY
PAPER 1
THEORY
Time: 2 Hours

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**ALLIANCE HIGH SCHOOL
MOCK EXAM**

Instructions to candidates

1. Answer **all** the questions in the spaces provided after each question paper.
2. Additional papers must not be inserted. All working must be clearly shown where necessary.
3. Candidates will be penalized for recording irrelevant information and incorrect spelling especially of technical terms.
4. All working must be clearly shown where necessary.

For Examiner's use only

Questions	Maximum Score	Candidate's Score
1 - 25	80	
TOTAL SCORE	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 that no questions are missing.

Answer ALL the questions in the spaces provided.

1. Explain how the following occur during gene mutation. (2 marks)

(i) Substitution

(ii) Insertion

2. (a) What is meant by the following terms. (2 marks)

(i) Inbreeding

(ii) Cross-breeding

(b) State one advantage and one disadvantage of inbreeding.

(i) Advantage (1 mark)

(ii) Disadvantage (1 mark)

3. (a) What are meristems? (1 mark)

(b) (i) What is the role of cork-cambium in secondary growth? (2 marks)

(ii) Name the meristem that is responsible for increase in length of stems. (1 mark)

4. State the advantage of polypoidy in plants. (1 mark)

5. (a) Majority of the vertebrate axons are myelinated. What is the importance of this? (2 marks)

(b) Some organisms possess giant axons i.e. axons with unusually large diameter. What is the significance of this? (1 mark)

6. (a) State two features of entomophilous flowers. (2 marks)

(b) What do the following terms stand for

(i) Pedicillate flower

(1 mark)

(ii) Gamopetalous

(1 mark)

7. (a) State two functions of luteinising hormone in a female.

(2 marks)

(b) State the two functions of placenta in mammals.

(2 marks)

8. State two functions of spleen.

(2 marks)

9. (a) What is an allele?

(1 mark)

(b) Name the alleles responsible for blood groups in man.

(1 mark)

10. State the importance of taxonomy in the study of biology.

(2 marks)

11. (a) (i) What is the function of the endodermis in plants?

(1 mark)

(ii) State the adaptation of endodermis to its function.

(1 mark)

(b) State the function of pericycle in plants.

(1 mark)

(c) _____ is a special type of epidermis of young roots whose cells give rise to root hairs

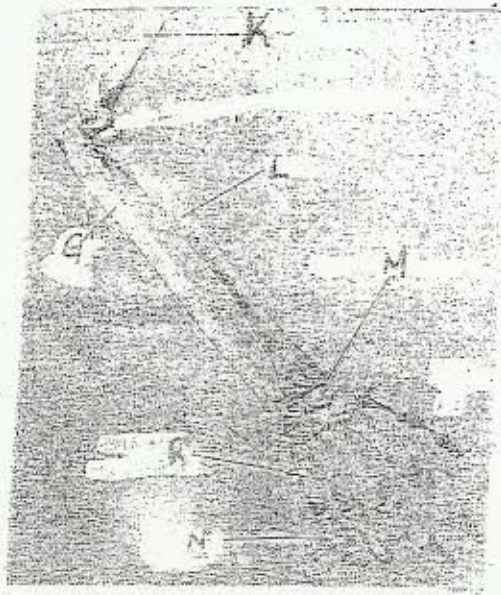
12. The outer and inner layers of the plasma membrane are made up of _____ whereas the middle layer is made of _____ (2 marks)

13. Distinguish between Haemolysis and Plasmolysis. (2 marks)

Haemolysis

Plasmolysis

14. Study the photograph below and answer the questions that follow



Name the parts labelled K, L, M.

(3 marks)

K

L

M

(b) What type of joint is found between

(i) Bones marked M

(1 mark)

(ii) Bones marked N

(1 mark)

15. (a) Which substance is excreted in greater amounts by a mammal in urine under the following conditions.

(i) Environmental temperature of 15°C

(1 mark)

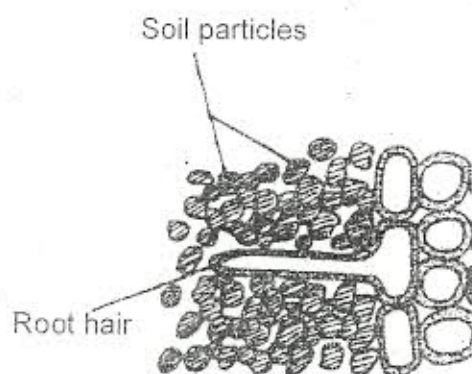
(ii) A large meal of soya beans taken earlier.

(1 mark)

(b) How would insufficient secretion of insulin affect the composition of urine.

(1 mark)

16. The diagram below represents a root hair.



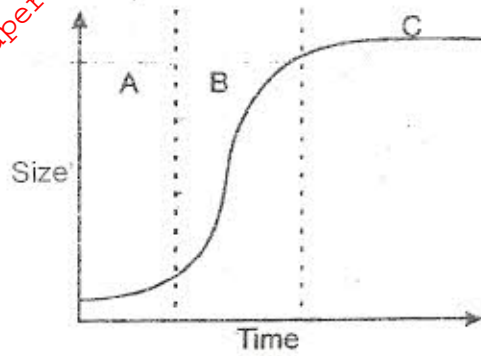
(a) Explain how the cell is adapted to its function.

(2 marks)

(b) State the biological significance of narrow xylem vessels in flowering plants.

(1 mark)

17. Below is a curve drawn from a data obtained from an organism showing its growth patterns.



(a) Identify the growth curve.

(1 mark)

(b) Name the phylum whose growth pattern is represented by the curve.

(1 mark)

(c) Account for the shape of the curve at part labelled C.

(2 marks)

18. A process that occurs in plants is represented by the equation below.



(a) Identify the process.

(1 mark)

(b) State two economic importance of the process named in (a) above

(2 marks)

(c) Name the substance which accumulates in muscles when respiration occurs with insufficient oxygen.

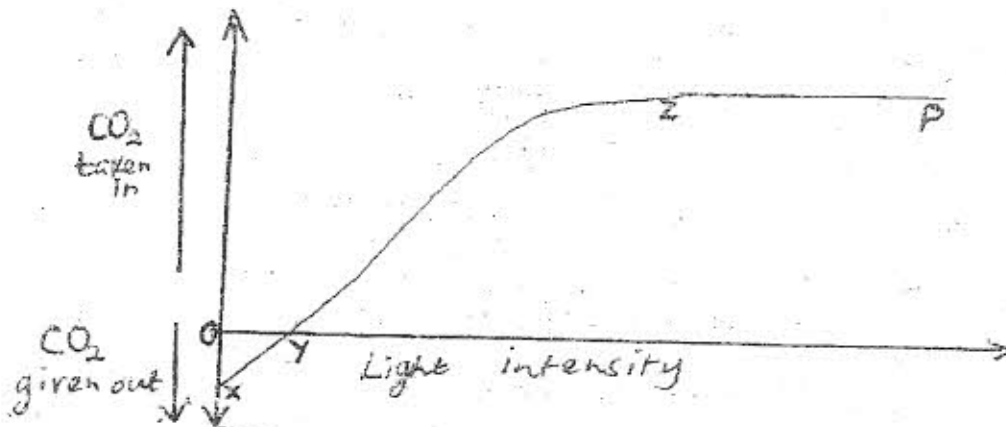
(1 mark)

19. Distinguish between
(a) Crenation and;

(2 marks)

(b) Plasmolysis

20. The graph below shows the effect of light intensity on the exchange of carbon (iv) oxide between the leaves of a green plant and the surrounding air.



(a) What is the name given to point Y? (1 mark)

(1 mark)

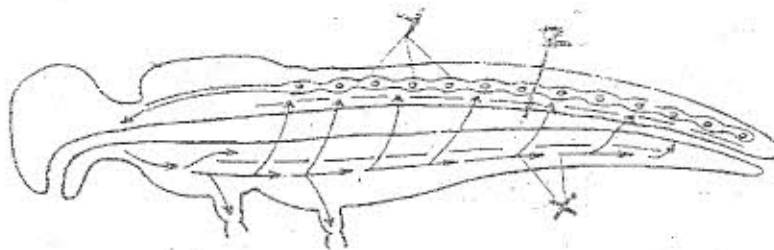
(b) Give an explanation of the slope of the curve between Y and Z. (1 marks)

(1 marks)

(c) What process is predominant at between point X-Y? (1 mark)

(1 mark)

21. The following is a diagrammatic side view of an insect illustrating blood circulation.



(a) What type of circulation is being illustrated?

(1 mark)

(b) Name

(3 marks)

(i) Part X

(ii) Structure Y

(iii) Structure Z

22. State three adaptations of plants which enable them to reduce water loss.

(3 marks)

23. (a) Distinguish between essential and non-essential amino acids.

(2 marks)

(b) Give two functions of lipids.

(2 marks)

24. Give the meaning of the term immunity?

(1 mark)

25. Humus is an important component of soil. State two roles of humus in soil.

(1 marks)

(i)

(ii)