

NAME.....ADM NO.....CLASS.....

SIGNATURE.....DATE.....

**BIOLOGY  
PAPER 1  
(THEORY)  
TIME: 2 HOURS**

**INSTRUCTIONS TO CANDIDATES:**

Write your **Name, Class** and **Adm. no** in the spaces provided above.  
Answer **all** the questions in this paper in the spaces provided.

**FOR EXAMINER'S USE ONLY:**

<b>Question</b>	<b>Maximum Score</b>	<b>Candidate's Score</b>
<b>1 - 25</b>	<b>80</b>	

1. (a) Define the term 'parthenocarpy'. (1mk)

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(b) Name **two** plant growth hormones that promote parthenocarpy. (2mks)

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2. Name the organelle that performs each of the following functions in a cell (1mk)

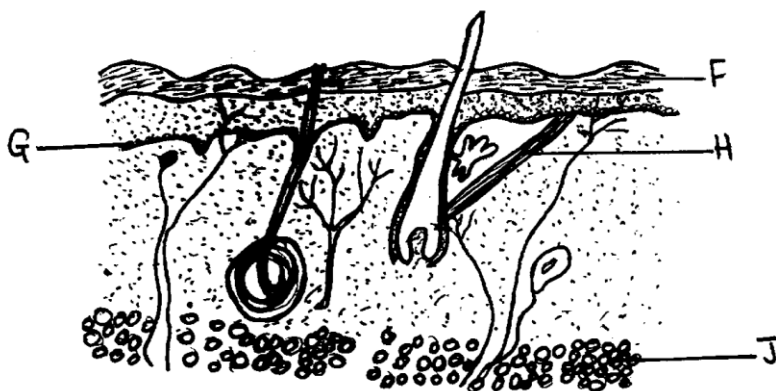
(i) Protein synthesis. (1mk)

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(ii) Transport of cell secretions. (1mk)

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3. The diagram below shows a longitudinal section of mammalian skin.



a) Name the parts labelled **F** and **G**. (2mrks)

**F** \_\_\_\_\_

**G** \_\_\_\_\_

b) State **one** function of each of the parts labelled **H** and **J** (2mrks)

**H** \_\_\_\_\_

**J** \_\_\_\_\_

4. Other than carbon (IV) oxide, name other products of anaerobic respiration in plants (2mks)

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5. (a) Name the fluid that is produced by sebaceous glands. (1mk)

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(b) State **two** functions of sweat on the human body. (2mks)

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6. (a) State **two** characteristics that are used to divide the phylum arthropoda into classes.(2mks)

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(b)Name the class with the largest number of individuals in the phylum Arthropoda. (1mk)

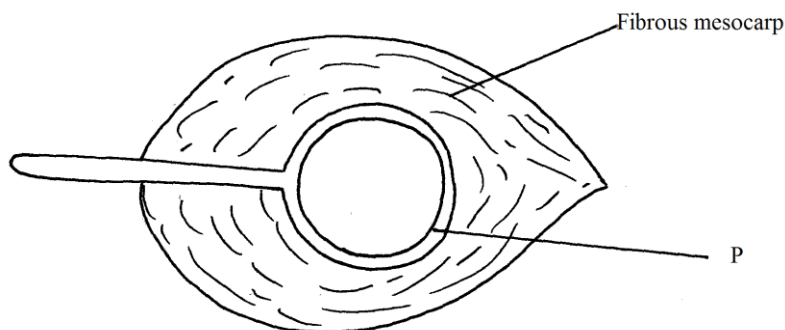
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7. Why are people with blood group O referred to as universal donors? (1mk)

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8. The diagram below represents a longitudinal section of a fruit



(a) Name structures labeled P (1mk)

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(b) Describe two adaptations of the fruit for its mode of dispersal (3mks)

(i) Mode of dispersal

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(ii) Adaptation

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9. (a) What causes the following diseases?

(i) Diabetes mellitus. (1mk)

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(ii) Diabetes insipidus. (1mk)

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b) An individual shows the symptoms for diabetes mellitus, how would you determine in the school laboratory whether they are positive for the condition?(3mks)

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10. In an attempt to estimate the number of weaver birds in a small woodland 435 were captured , marked and released. Three days later, 620 were captured 75 of which were marked.

a) What is the name of the sampling method described above? (1mk)

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b) Calculate the approximate size of the weaver bird population in the woodland.(2mks)

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c) Give one disadvantage of this method. (1mk)

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11. Identify the nucleic acid whose base sequence is shown below.

G-A-C-U-A-G-A-C-G

i) Identify the type of nucleic shown above (1mk)

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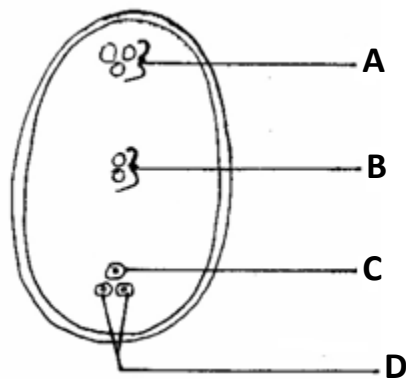
ii) Give reason for your answer in (i) above. (1mk)

iii) Write the base sequence of a DNA strand for the nucleic acid shown above (1mk)

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12. The diagram **below** shows a mature embryo sac of a flowering plant.



(a) Name the parts labeled **A** and **B** (2mks)

**A** \_\_\_\_\_

**B** \_\_\_\_\_



(b) What is the function of the structure labeled B? (1mk)

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13. (a) Name the tissues that transport water in plants. (1mk)

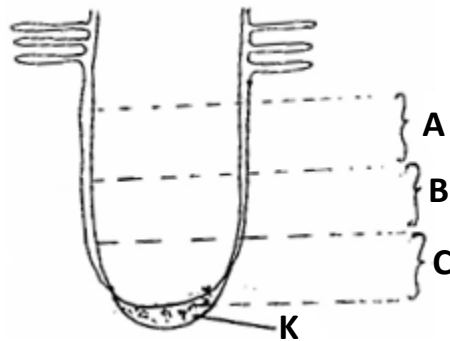
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(b) State why the tissue above is said to be dead. (1mk)

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14. The diagram **below** shows regions of growth in a root. Study it and answer the questions that follow.



(a) Name the zone labeled **B**

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(1mk)

(b) State the function of part **K** (1mk)

(c) State three characteristics of the cells found in zone **C**(3 mks)



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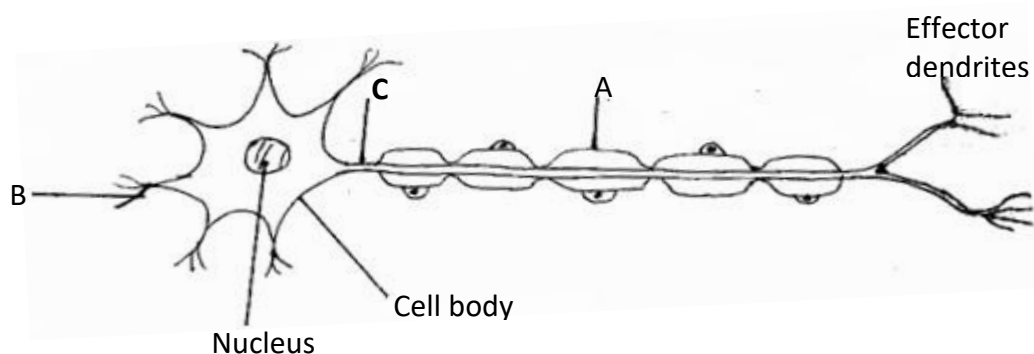
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15. The enzymes pepsin and trypsin are secreted in their inactive forms. Explain why they are secreted in these inactive forms. (1mk)

16. (a) Give two examples of natural selection in action. (2mk)

b) List three features that make man the most dominant species on earth. (3mks)

17. Study the diagram **below** of a neurone in human being.



(a) Identify the neurone. (1mk)



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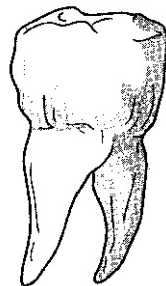
(b) Name the parts labeled.

**A** \_\_\_\_\_ (1mk)

**B** \_\_\_\_\_ (1mk)

(c) Using an arrow indicate the direction of movement of a nerve impulse along the neuron (1mk)

18. Study the diagram of the mammalian tooth **below** and answer the questions that follow.



(a) Identify the tooth. (1mk)

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(b) Give a reason for your answer in (a) above. (1mk)

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(c) State **one** adaptation of the tooth to its function. (1mk)

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19.a) Name the part of the brain that regulates breathing (1mk)

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b) Give two ways through which the body responds to increased concentration of carbon (IV) oxide in the blood (2mks)





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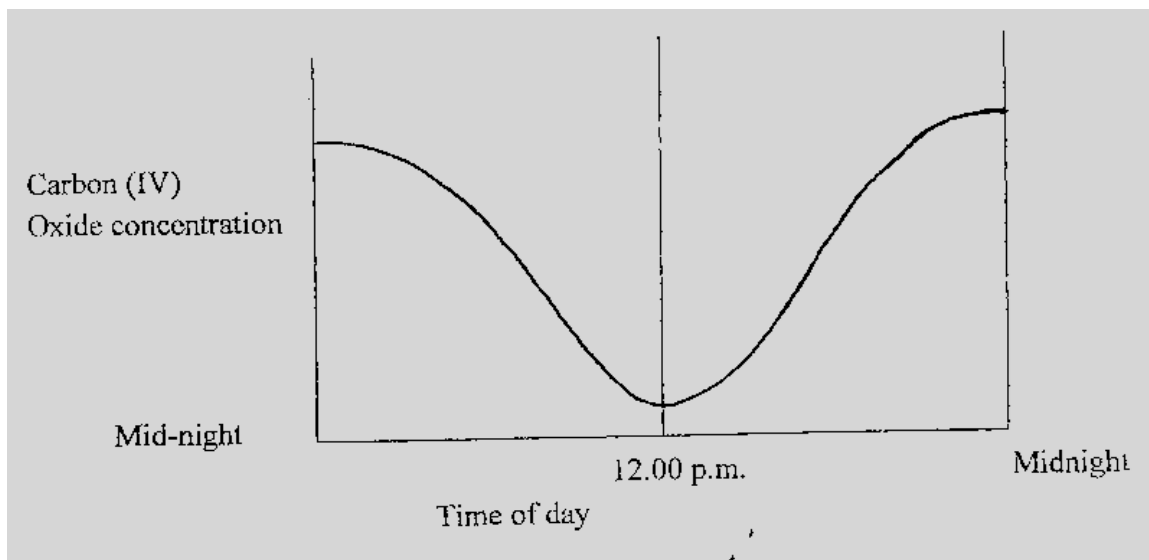
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c) Name the structures in pneumatophores through which gaseous exchange occurs. (1mk)

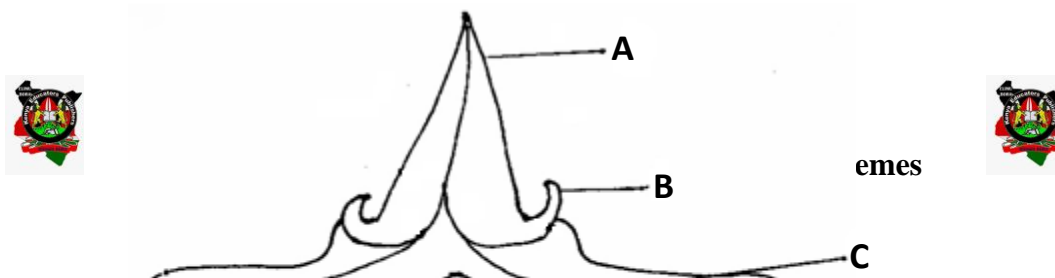
20. The concentration of carbon (IV) oxide in a tropical forest was measured during the course of 24 hours period from mid-night to mid-night.



Account for the results obtained at mid day.

(2mks)

21. The diagram **below** represents the anterior view of a certain vertebra.



(a) With a reason, identify the type of vertebra shown **above**. (2mks)

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(b) Name the parts labeled.

(i) **A** \_\_\_\_\_ (1mk)

(ii) **D** \_\_\_\_\_ (1mk)

(c) State the function of part **E**. (1mk)

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22.(a) State one similarity between diffusion and osmosis (1mk)

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(b) State two factors that can reduce the rate of active transport (2mks)

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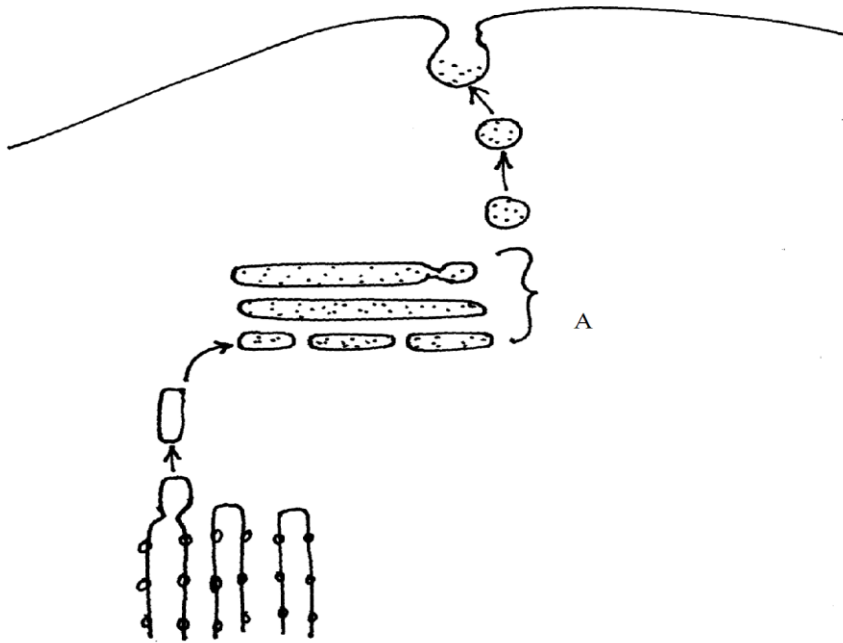
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23. Study the diagram below and use it to answer the questions.



a) Identify the organelle marked A.

(1mk)

b) Give three functions of the organelle named in (a) above

(3mks)

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24. It was found that during germination of pea seeds  $9.3\text{cm}^3$  of carbon (iv) oxide was produced while  $9.1\text{cm}^3$  of oxygen was used up.

a) Calculate the respiratory quotient (RQ) of the reaction taking place. (2mks)



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b) Identify the type of food substance being metabolized. (1mk)

25. What is the biological importance of the larval stage during metamorphosis(2mks)

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