

NAME:.....

ADM NO.....

CLASS:.....

FORM 4

BIOLOGY

PAPER 231/1

END OF TERM ONE 2019

TIME: 2 HOURS

Instructions to candidates,

1. Write your name and admission number in the spaces provided above.
2. Answer all the questions in the spaces provided.

FOR EXAMINERS USE ONLY

QUESTIONS	MAXIMUM SCORE	SCORE
1-11	20	

1. Based on growth, differentiate between plants and animals.

(2mks)

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2. a). Explain how the following contribute to movement of water up the xylem vessels.

(2mks)

i). Cohesion

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ii). Adhesion

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b). State **two** environmental factors that increase the rate of transpiration.

(2mks)

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3. a). What are vestigial structures.

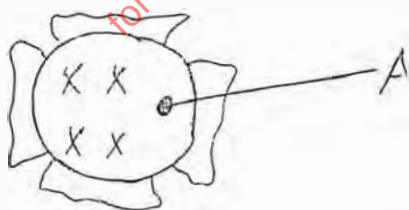
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b). Give **three** examples of vestigial structures in animals

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4. The figure below represents a certain cell organelle.



i). Identify the cell organelle.

(1mk)

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ii). What is the function of the part labeled A.

(2mks)

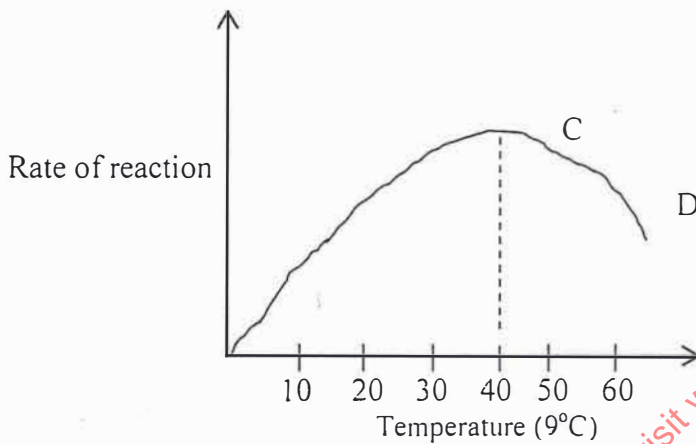
5. a). What is the role of light in the light stage of photosynthesis.

(2mks)

b). What are the products of the dark stage of photosynthesis.

(2mks)

6. The graph below shows the effect of temperature on the rate of reaction of the enzyme salivary amylase.



i). Account for the changes in the curve between C and D.

(1mk)

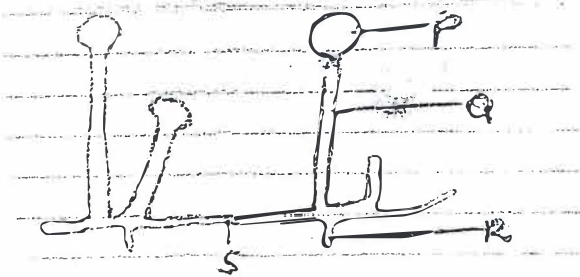
ii). What does the dotted line represent?

(1mk)

iii). Explain how the temperature affect the rate of enzyme activity.

(2mks)

7. The diagram below represents a mature bread mould (Rhizopus)



a). Name the parts labeled Q and S. (6mks)

Q.....

S.....

b). State the function of the parts labeled R. (1mk)

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.....

c). Name the Kingdom to which bread mould belongs. (1mk)

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8. a). Both oestrogen and progesterone affect the uterus during the menstruation cycle. State the effect each has on the uterus. (2mks)

i). Oestrogen.

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ii). Progesterone

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b). State **two** roles of the placenta. (2mks)

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9. a). What is meant by the term taxonomy. (1mk)

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b). The scientific name of a rat is Rattus norvegicus

i). What does the name Rattus represent. (1mk)

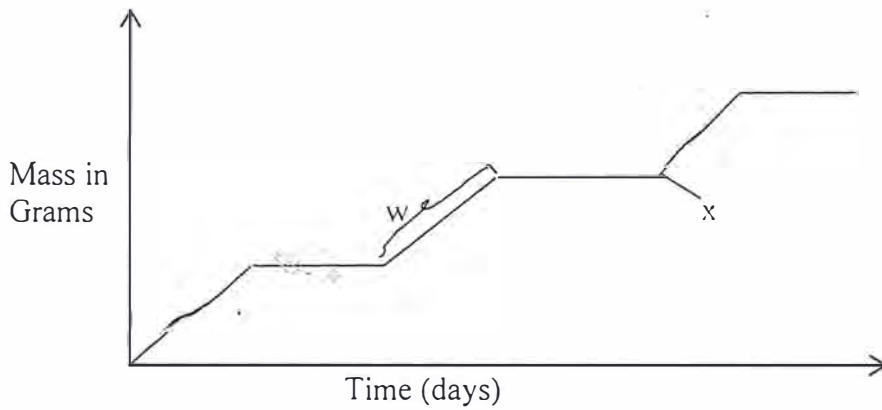
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ii). Identify the species name.

(1mk)

10. The diagram below represents a growth pattern of Arthropods.



a). Name the type of growth pattern represented on the graph.

(1mk)

b). Identify the process represented by X.

(1mk)

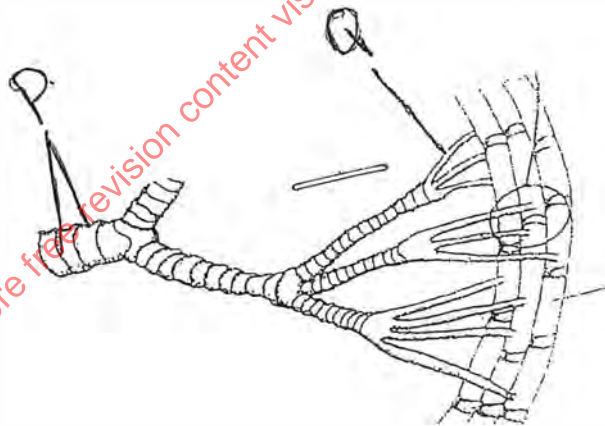
c). Which hormone is responsible for process at X in (b) above?

(1mk)

d). State the importance of the process labelled.

(1mk)

11. The diagram below represents part of a gaseous exchange system in a grasshopper.



a). Name the structures labeled P and Q.

P.....

(1mk)

Q.....

(1mk)

b). State the function of the part labeled P.

(1mk)

c). State **one** adaptation of structure Q to its functions.

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12. Name **four** sites where gaseous exchange takes place in terrestrial plant:
(4mks)

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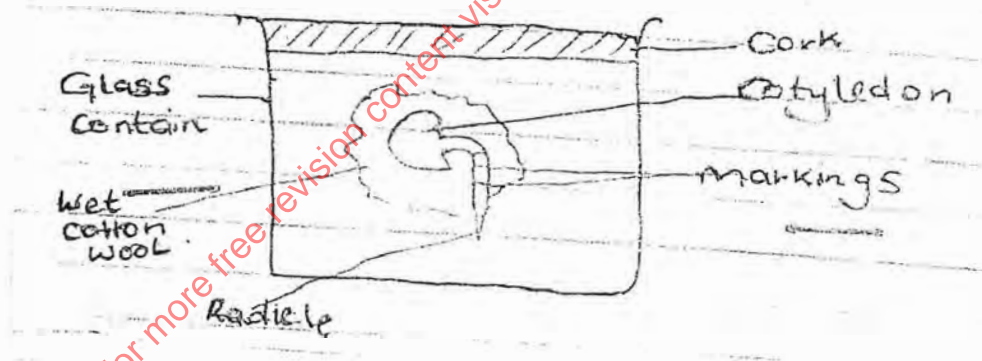
13. a). In what form is energy stored in muscles.

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b). State the economic importance of anaerobic respiration.

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14. A student set up an experiment as shown in the diagram below.



a). What was being investigated?

c). What is the role of the following to a germinating seed.

i). Oxygen

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ii). Enzymes

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15. List down **four** phenotypic characteristics that have been selected for the production of strains for modern agricultural purpose.

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16. Define the following terms used in ecology.

a). Synecology

(1mk)

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b). Ecological niche

(1mk)

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c). Give the function of the following ecological instruments;

i). Seechi dish

(1mk)

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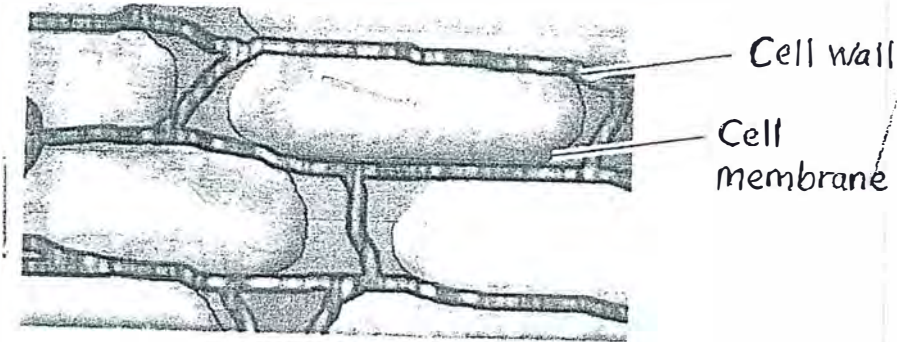
ii). Photographic light meter

(1mk)

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17. a) The diagram below shows cells from the potato chips placed in saturated sugar solution



a). Explain the appearance of these cells.

(3mks)

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b). State the function of the proximal convoluted tubule of the kidney nephron.

(1mk)

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18. Explain the processes that take place in humans when glucose concentration in blood is below normal level.

(4mks)

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19. List **four** features that adapt fruits for disposal by animals.

(4mks)

20. Give **four** reasons why plants do not have a specialized excretory system.

(4mks)

21. a). State **three** structural differences between arteries and veins in mammals.

(3mks)

Arteries	Veins

b). Name a disease that causes thickening and hardening of arteries.

(1mk)

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