

NAME:.....

ADM NO.....

CLASS:.....

FORM 3

BIOLOGY EXAM

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 section A in the spaces provided.
3. In section B answer question 17 (Compulsory) and either question 18 or 19 in the spaces provided.

FOR EXAMINERS USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	SCORE
A	1-11	20	
B	12-16	40	
C	17-19	40	
TOTAL		100	

SECTION A: (20MARKS)

1. a). Name the blood vessels that connects arteries to veins. (1mks)
.....
b). State **one** adaptation in which the vessels named in (a) above are adapted to carry their function. (1mk)
.....
.....
2. State **two** adaptations of gill filaments to their functions. (2mks)
.....
.....
.....
3. A plant with variegated leaves was left in strong sunlight for about four hours. The leaf was then tested for starch. Account for the results obtained when the leaf was tested for starch in the green and white region. (2mks)



.....
.....
.....
.....

4. Oxidation of a certain fat in the body cells of an animal occurred according to the following equation.
 $2C_5H_{98}O_6 + 145O_2 \rightarrow 102CO_2 + 98H_2O + \text{Energy}$
Determine the respiratory Quotient of the fat. (2mks)

SECTION A: (20MARKS)

1. a). Name the blood vessels that connects arteries to veins. (1mks)

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b). State **one** adaptation in which the vessels named in (a) above are adapted to carry their function. (1mk)

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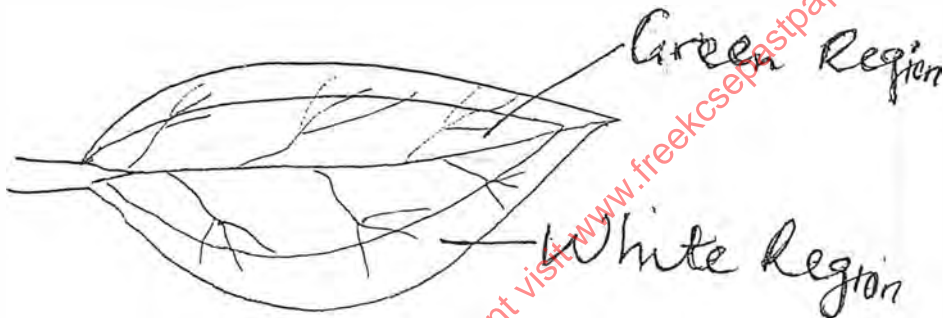
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Determine the respiratory Quotient of the fat. (2mks)

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5. State what would happen in each of the following.

(2mks)

A plant cell placed in;

i). strong salt solution

.....
.....

ii). Distilled water

.....
.....

6. Based on the following characteristics of living things, state the differences between plants and animals

(2mks)

Characteristic	Plants	Animals
i). Irritability and Sensitivity
ii). Distilled water

7. State **one** environmental problem that can be solved by studying biology.

(1mk)

8. Name the organelle that is involved in each of the following. (2mks)

a). Manufacture of lipids.

.....
.....

b). Formation of lysosome

.....
.....

9. State the uses of each of the following excretory products in plants.

(2mk)

a). Colchine

.....
.....

b). Papain

.....
.....

10. State **two** adaptations of pneumatophores for gaseous exchange.

(2mks)

.....
.....
.....

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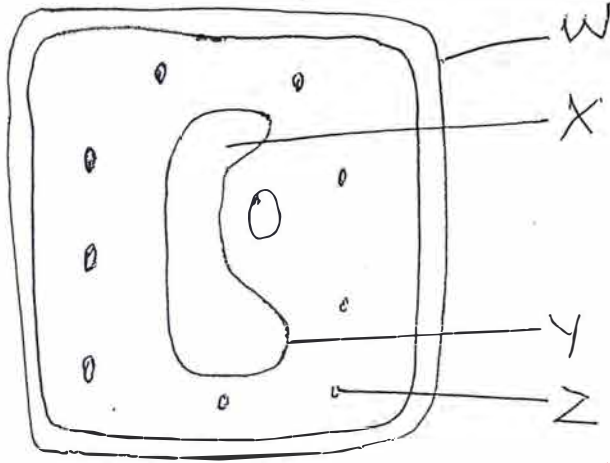
11. Define ornithology.

(1mk)

SECTION B: (40 MARKS)

Answer **all** questions in the spaces provided.

12. Examine the diagram below carefully and use it to answer the questions that follow.



a). Name the parts X, Y and Z.

(3mks)

X.....

Y.....

Z.....

b). State the main substance which make-up the part labeled W.

(1mk)

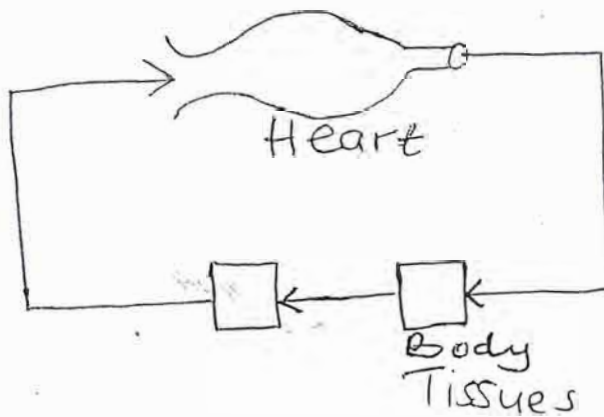
c). Name the process through which mineral salts move into the structure labeled X.

(1mk)

d). Explain what happens to a red blood cell when placed in distilled water.

(3mks)

13. The diagram below represents circulation of an animal/



a). Name the type of circulation illustrated.

(1mk)

b). Name the organism which has this type of circulation system.

(1mk)

c). Name the opening chamber of the heart of an insect.

(1mk)

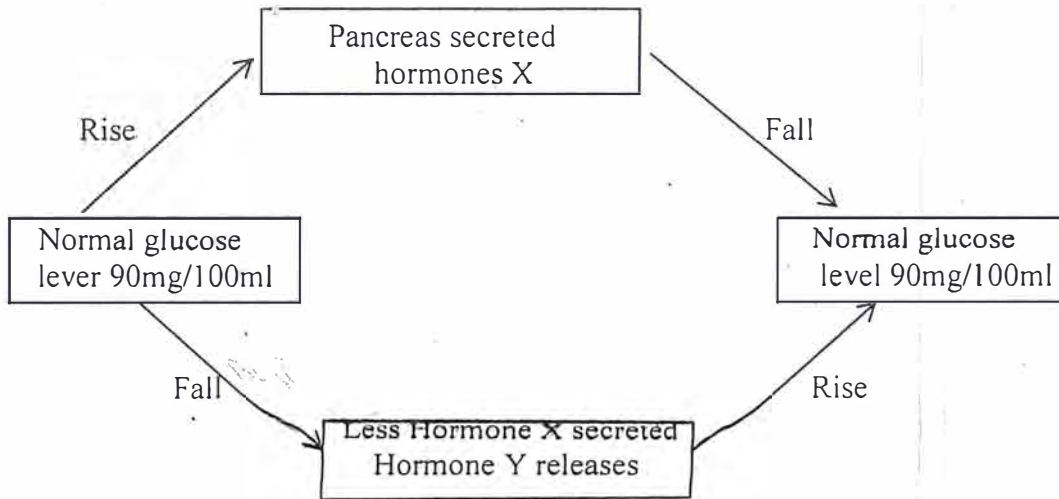
d). Differentiate between pulmonary circulation and systemic circulation.

(2mks)

e). List **three** structural differences between arteries and veins.

(3mks)

14. The diagram below shows how blood glucose in mammalian blood is regulated.



a). Name the hormone labeled X and Y. (2mks)

X.....

Y.....

b). State **two** ways by which hormone X lowers glucose level in the blood when it raised above 90mg/100ml. (2mks)

.....

.....

.....

c). Name the organ that produces hormone Y. (1mk)

.....

d). Suppose there is a deficiency of hormone X, state the disease the person would suffer from. (1mk)

.....

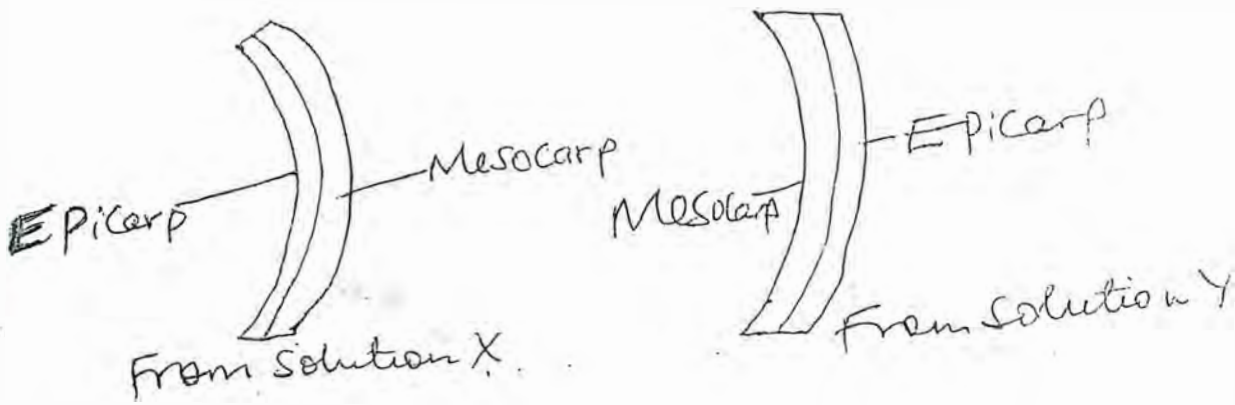
e). Explain how the disease named in (d) above can be controlled. (2mks)

.....

.....

.....

15. Two straight pieces of raw banana peels were obtained. The pieces were placed in salt solution of different concentration for 30 minutes. The appearance after 30 minutes is as shown below.



a). What physiology process was being investigated. (1mk)

.....

b). Account for the appearance of the piece in solution Y. (4mks)

.....

c). Name the cell structure responsible for the observation made in this experiment. (1mk)

.....

d). State **two** roles do active transport in living organisms. (2mks)

.....

16. a). The scientific name of the black jack plant is Bidens Pilosa. Which taxonomic unit does the Bidens refer to?

.....

b). What is the name given to the double naming system of living organism.

.....

c). Explain why a Leopard and a Lion cannot breed yet they belong to the same genus (1mk)

.....

d). Distinguish between

i). Common names and scientific names of living organism.

(1mk)

.....
.....

ii). Taxon and Taxonomy (1mk)

.....
.....

iii). Name **three** kingdoms of classification where members are multicellular. (3mks)

.....
.....
.....

SECTION C: (40 MARKS)

Answer question 17 and either 18 or 19.

17. In an experiment to investigate the effect of temperature on the activity of salivary amylase enzyme, test tubes containing 5cm³ of starch solution were placed in water baths maintained at different temperatures. After 30 minutes, a 1cm³ amylase solution was added into each of the test tubes. At one minute intervals a drop of the mixture in each test-tube was tested for presence of starch. The time taken for all the starch to be digested was taken and recorded. The results were as shown in the table below.

Temperature (°C)	5	10	15	20	25	30	35	40	45
Time taken to digest all the starch (mins)	80	60	48	26	18	9	3	14	75

a). On the grid provided plot a graph of time taken to digest all the starch against temperature. (6mks)

b). What is the optimum temperature range for the enzyme.

(1mk)

.....

c). Account for the results obtained at

i). 5°C

(2mks)

.....
.....

ii). 45°C

(2mks)

.....
.....

