

NAME:.....

ADM NO.....

SCHOOL:.....

DATE:.....

BIOLOGY

FORM II

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and admission number in the spaces provided above.
- ❖ Answer ALL questions in the spaces provided.

This paper consists of printed pages:

NB: Candidates should check the question paper to ensure that all the printed pages are printed as indicated an no question is missing.

SECTION A 40 MARKS

Answer All the questions in the space provided.

1. Name the most appropriate tool that Biology students can use for collecting

i. Crawling animals (1mk)

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.....

ii. Flying insects (1 mk)

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2. State the name given to the study of:

a) Cells (1 mk)

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.....

b) Classification of living organisms (1 mk)

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3. a) Define the term species (1 mk)

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b) A Tiger is known as Panthera Tigris

i. Identify two mistakes made in writing the scientific name (2 mks)

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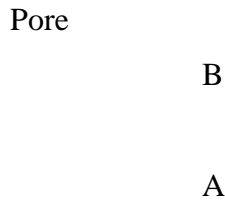
ii. Explain why a Leopard and a tiger cannot breed yet they belong to the same genus (1 mk)

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4. A cell was magnified 200 times using a light microscope whose eye-piece lens magnification was X10. What was the magnification of the objective lens (3 mks)

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5. The cell structure below was observed under the light microscope



a) Identify the cell structure (1 mk)

b)
.....

c) Name the labeled parts A and B (2 mks)

A.....

B

d) State one function of the above structure (1 mk)

.....
.....

6. In an experiment equal amounts of three different sugar solutions were placed in the risking tubings X, Y and Z. the tubings were placed in a beaker of water containing 5% sugar solution. The set up was left for two hours. The results were as shown in the diagram below.

X

Z

Beginning of experiment

End of experiment

a) Name the process being investigated in the experiment (1 mk)

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.....

b) Account for the observations made at the end of the experiment (3 mks)

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c) State three importance of the process named in (a) above in living organisms (3 mks)

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7. i) Name the carbohydrates that is (3 mks)

a) Found in abundance in mammalian blood

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.....

b) Stored in mammalian liver

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.....

c) Stored in plant seeds

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.....

ii) List two importance of water in living organisms (2 mks)

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8. The enzyme pepsin and trypsin are secreted as inactive precursors:

a) What are the name of the precursors (2 mks)

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b) Why are they secreted in an inactive form (1 mk)

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9. State two structural and two environmental factors that affect the rate of transpiration

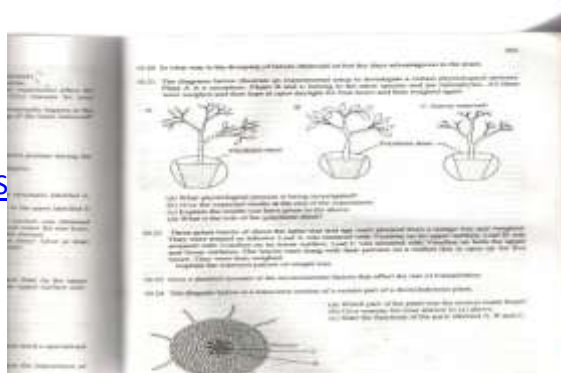
a) Structural (2 mks)

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.....

b) Environmental (2 mks)

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10. The diagram below is a transverse section of a certain part of a dicotyledonous plant.



a) Which part of the plant was the section made from (1 mk)

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.....

b) Give reasons for your answer (1 mk)

.....
.....

c) State the functions of the parts labeled A and C (2 mks)

A.....
.....

C.....
.....

11. Give an example of an animal with (2 mks)

a) Open circulatory system

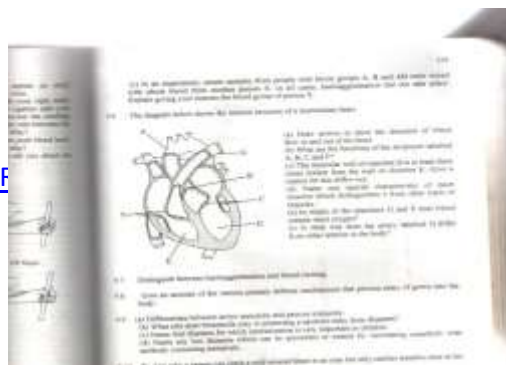
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b) Closed circulatory system

.....
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SECTION B 40 MARKS

12. The diagram below show the internal structure of a mammalian heart



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a) Using arrows show the direction of blood flow in and out of the heart (2mks)

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.....

b) Name the parts labeled (2 mks)

A.....
C.....

c) The muscular wall of chamber D is at least three times thicker than the wall of chamber E. give a reason for this difference (1 mk)

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.....

d) Name two special characteristics of heart muscles which distinguishes it from other parts of muscles (2 mks)

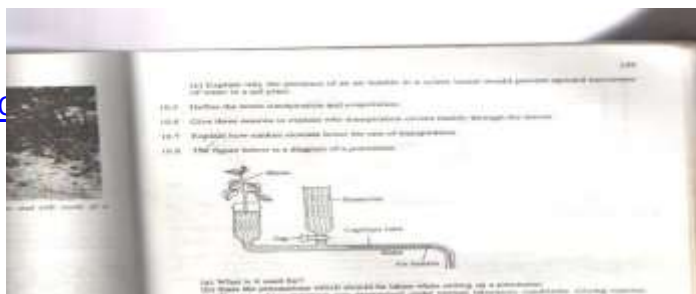
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e) In what way does the artery labeled G differ from other arteries in the body (1 mk)

.....
.....

13. The figure below is a diagram of a potometer

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a) What is it used for? (1 mk)

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.....

b) State one precautions which should be taken when setting up a photometer (1 mk)

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.....

c) The rate of transpiration was determined under normal conditions in the laboratory. Giving reasons, explain the differences you would expect if the measurements were repeated under the following conditions.

i. The shoot is placed close to the heat source (2 mks)

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.....

ii. Some leaves are removed (2 mks)

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iii. The shoot is placed in a current of air created by a fan (2 mks)

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.....

14. The figure below is a diagram of a vertical section of a mammalian tooth

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- a) Name the parts labeled A – F (2 mks)
- | | |
|--------|--------|
| A..... | D..... |
| B..... | E..... |
| C..... | F..... |

- b) How are the structures labeled A and D adapted to their functions (2 mks)
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- c) List down three ways of preventing teeth diseases (3 mks)
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15. a) Give two reasons why clotting of blood is important (2 mks)
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b) Name one enzyme and one metal ion that are required in the blood clotting process (2 mks)

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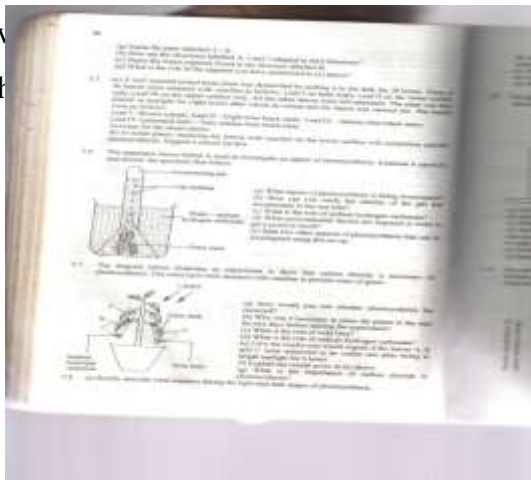
c) Explain why excessive bleeding may lead to death of a patient (3 mks)

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e) Explain why deficiency of vitamin K leads to excessive bleeding even from small cuts (1 mk)

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16. The diagram below shows an experiment to show that carbon (IV) oxide is necessary for photosynthesis. The apparatus is set up to prevent entry of gases.



a) Why is it necessary to place the plants in the dark for two days before starting the experiment? (1 mk)

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.....

b) What is the role of soda lime? (1 mk)

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.....

c) Give the results you would expect if the leaves A and C were subjected to an iodine test after being in bright sunlight for 6 hours.

i. A (1 mk)

.....
.....

ii. C (1 mk)

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.....

d) Explain the results given in (C) above (2 mks)

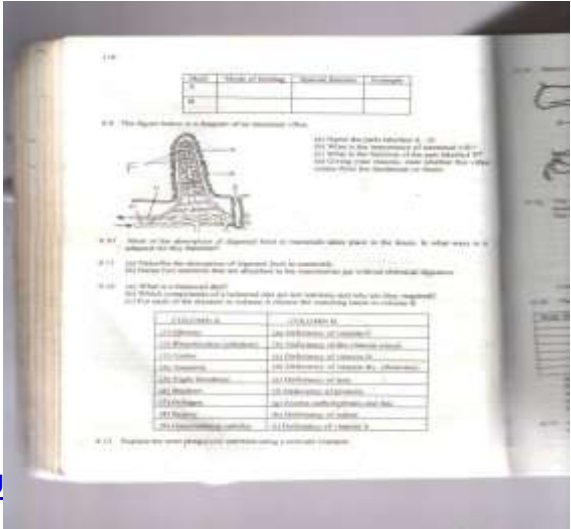
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e) A part from carbon (IV) oxide, name two other factors which are necessary for photosynthesis to take place (2 mks)

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SECTION C 20 MARKS

17. The figure below is a diagram of an intestinal villus. Study it and answer the questions that follow.



a) Name the parts labeled A – D (2 mks)

A..... C.....
B..... D.....

b) What is the importance of the villi? (1 mk)

.....
.....

c) What is the function of the part labeled F (1 mk)

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d) Most of absorption of digested food in mammals takes place in the ileum. In what ways is it adapted for this function (4 mks)

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e) Name two nutrients that are absorbed in mammalian gut without chemical digestion (2 mks)

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18. State and Explain five factors that determine energy requirements in human beings (10 mks)

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