**NAME :……………………………………………………ADM NO……………….**

**CANDIDATE’S SIGNATURE………………………….DATE:………………….**

**BIOLOGY**

**FORM III**

**TIME: 2 HOURS**

**INSTRUCTIONS TO CANDIDATES**

* Write your name and admission number in the spaces provided above.
* Answer ALL questions in the spaces provided
* All working must be clearly shown where necessary
* Students should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

This paper consists of **9** printed pages:

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

**FOR EXAMINER’S USE ONLY**

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| **QUESTIONS** | **MAXIMUM SCORE** | **CANDIDATE’S SCORE** |
| **1-19** | **80** |  |

1. State the use of each of the following. (3mks)
2. Ribosomes ………………………………………………………………………………………………......
3. Mitochondria ………………………………………………………………………………………………......
4. Lysosome …………………………………………………………………………………………………..
5. A ‘dolf’ is an offspring between a wolf and a dog. This animal is infertile. Give a reason for this. (1mk)

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1. a) What is a hypotonic solution? (1mk)

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b) Explain the changes that will be observed if a drop of human blood is added to this solution. (3mks)

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c) State four importance of osmosis to plants. (3mks)

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1. Give two main branches of Biology. (2mks)

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1. A certain animal has no incisors and no canine but has six premolars and 6 molars in the upper jaw. In the lower jaw there are 6 incisors, 2 canines, 6 premolars and 6 molars.
2. What is the dental formula of the animal? (1mk)

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1. Calculate the total number of teeth. (1mk)

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1. Giving reasons, state the mode of feeding. (2mks)

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1. State and explain three environmental factors that affect transpiration. (6mks)

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1. A man is of group A+.
2. What type of antigen does his blood have? (1mk)

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1. What types of antibodies are present in his blood? (1mk)

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1. Which blood groups can he receive blood from? (2mks)

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1. (a) How is the mitochondrion adapted to its function? (2mks)

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(b) In which part of the mitochondrion does aerobic respiration take place? (1mk)

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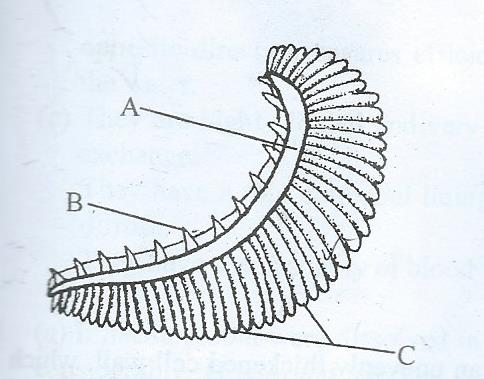
1. State four structural differences between arteries and veins. (4mks)

|  |  |
| --- | --- |
| Arteries | Veins |
|  |  |
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1. State three characteristics of a respiratory surface. (3mks)

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1. The diagram below illustrates the structure of a gill from a bonny fish.



1. Name the structures labelled A, B and C and give their functions. (6mks)

A……………………………………………………………………………………………………………………………………………………………………………………………………………

B……………………………………………………………………………………………………………………………………………………………………………………………………………

C……………………………………………………………………………………………………………………………………………………………………………………………………………

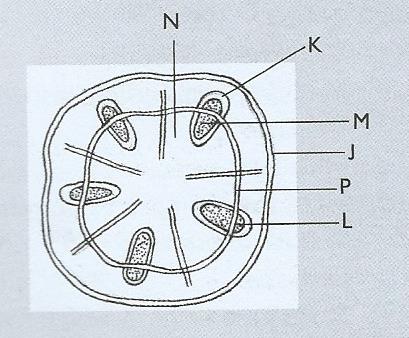
1. How is structure labeled C adapted to its function? (1mk)

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1. State the functions of the following parts of a microscope. (3mks)
2. Diaphragm ………………………………………………………………………………………………….
3. Condenser ………………………………………………………………………………………………....
4. Fine adjustment knob

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1. The diagram below represents a transverse section of a part of a young plant and seen under light microscope.



1. From which part of the plant was the specimen obtained? (1mk)

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1. Name the parts labelled J,P and M. (3mks)

J……………………………………………………………………………………………………..

P…………………………………………………………………………………………………….

M……………………………………………………………………………………………………

1. Name the functions of the part labelled M. (1mk)

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1. State three factors that determine the amount of energy a human requires in a day. (3mks)

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1. State two defects of circulatory system. (2mks)

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b) State three adaptations of erythrocytes to their functions. (3mks)

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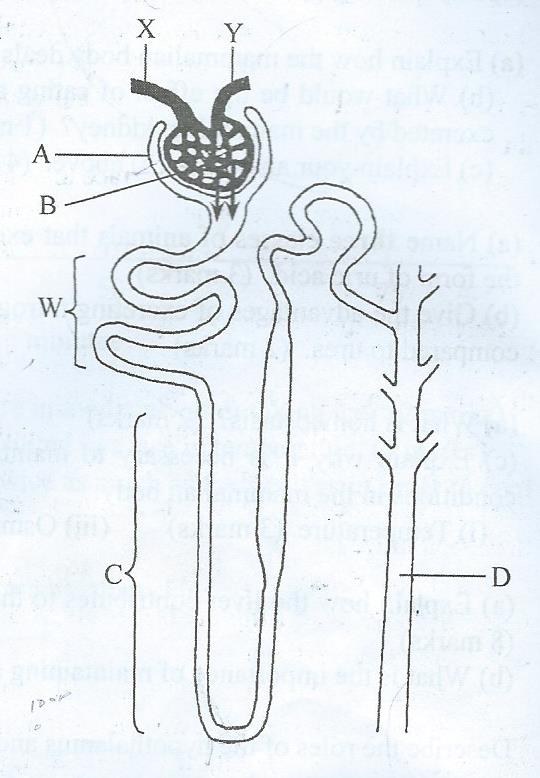
1. A jet aeroplane is able to move and oxidise fuel to carbon (IV) oxide and water yet it is not classified as a living thing. List other characteristics of living things not shown by a jet aeroplane. (3mks)

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1. Outline three applications of anaerobic respiration. (3mks)

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1. Define the following terms. (3mks)
2. Excretion ……………………………………………………………………………………………………………………………………………………………………………………………………
3. Secretion ……………………………………………………………………………………………………………………………………………………………………………………………………..
4. Homeostasis …………………………………………………………………………………………………………………………………………………………………………………………………….
5. The diagram below illustrates a nephron from a mammalian kidney.



1. Name the parts labelled A, B,C and D. (4mks)

A………………………………………………………………………………………………...

B………………………………………………………………………………………………...

C………………………………………………………………………………………………...

D………………………………………………………………………………………………...

1. Name the process represented by arrows. (1mk)

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1. Name three substances that are completely reabsorbed in the part labelled W in a normal human being. (3mks)

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1. Name the component of blood that do not enter the renal tubule in mammals. (1mk)

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1. How does the part labelled C of a camel compare with that of a hippo? (2mks)

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