MOKASA 2 EVALUATION EXAMINATION

231/1 - BIOLOGY -

Paper 1

July- 2019 - 2 Hours

Name: …… Adm. No: ……

Index No…… Signature …… Date ……

INSTRUCTION TO CANDIDATES

a) *Write your name and admission number in the spaces provided above.*
b) *Sign and write the date of the examination in the spaces provided.*
c) *Answer ALL the questions in this question paper.*
d) *Answers must be written in the spaces provided*
e) ***This paper consists of 10 printed pages**.*
f) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
g) ***Candidates should answer all the questions in English**.*

FOR EXAMINER'S USE ONLY.

QUESTION NUMBER	**Maximum Score**	**Candidate's Score**
1-23	80	

1. State the importance of biology in the following areas.
   (3marks)
   a) Agriculture.

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   b) Environment

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   c) Food technology

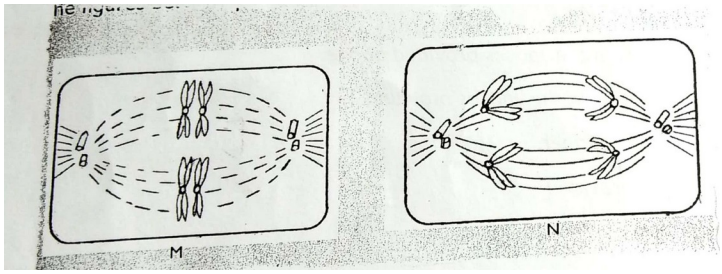
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2. The figures below represent two phases of actively dividing cell.



   a) Name the phases marked M and N. (2marks)

      M .....

      N .....

   b) Identify the type of cell division. (1mark)

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3. The Scientific name of confused beetle is **TRIBOLIUM CONFUSAM**. Identify any three mistakes made in writing the name.
   (3marks)

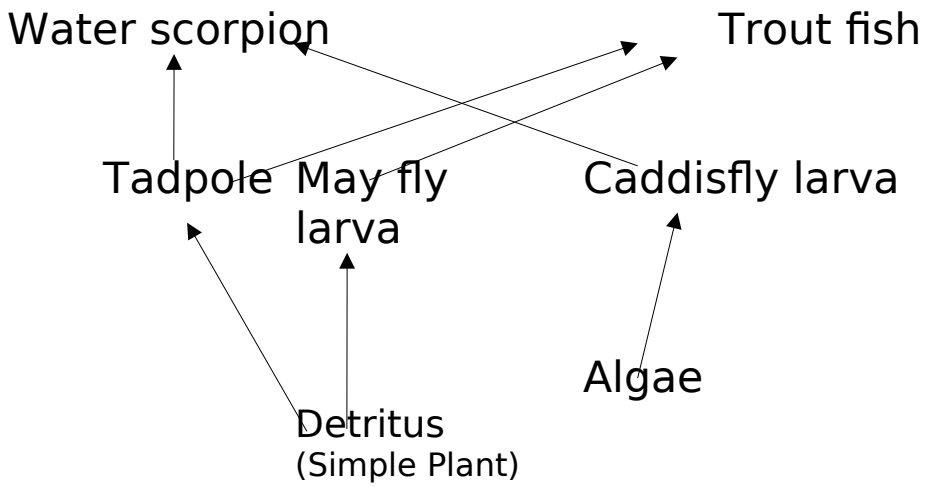
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4. Study the food web below and answer the questions that follow.



a) Write down a food chain whose all consumers are Arthropods.
(1mark)

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b) What would be the short term effects on the habitat if all trout fish were eliminated?
(2marks)

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5. a) State two ways in which energy flow in an ecosystem can be expressed.
(2marks)

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b) What is the role of decomposers in an ecosystem?
(2marks)

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6. What is the role of the following parts of the ear.

   i) Eustachian tube. (1 mark)

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   ii) Tympanic membrane. (1 mark)

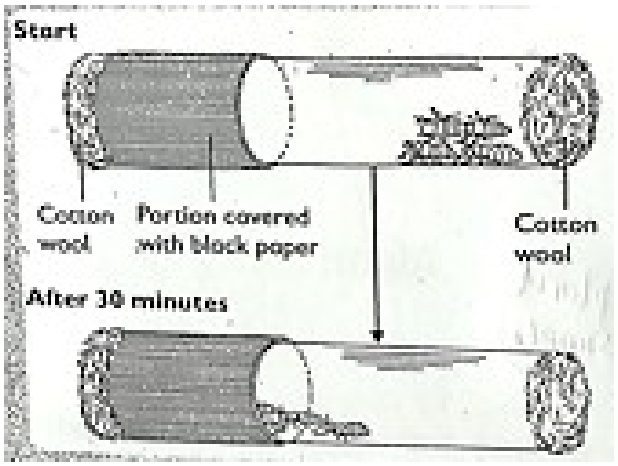
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7. An experiment to investigate a certain response by termites, was set up as shown below. The set up was exposed to the sun for some time.



   a) What were the results at the end of the experiment? (1 mark)

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   b) Name the type of response exhibited by the termites. (1 mark)

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c) Give one survival value of the response. (1 mark)

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8. State two unique physical characteristics of skeletal muscles.
(2marks)

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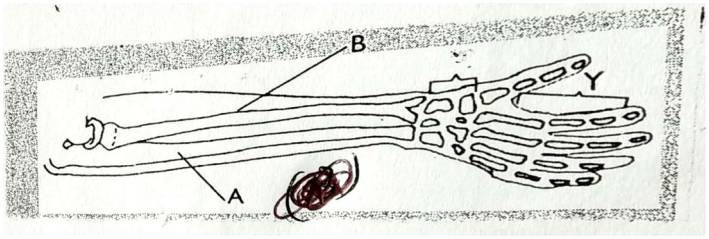
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9. Name two plant tissues that are thickened with lignin.
(2marks)

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10. Study the diagram below and answer the questions that follow.



a) Identify the bones labelled A and B.
(2marks)

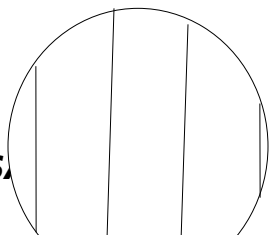
A .....

B .....

b) Name the joint found in the region labelled Y.
(1mark)

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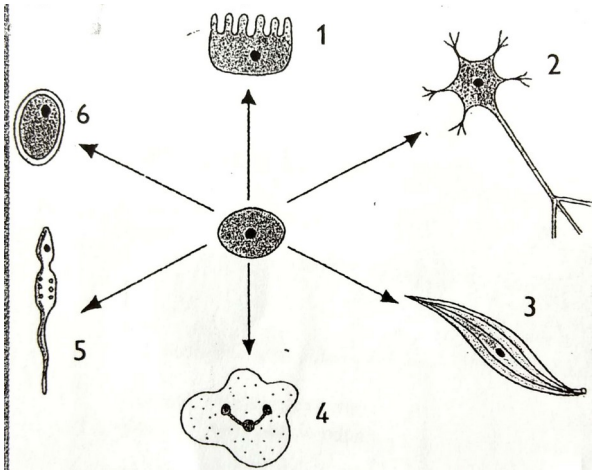
11. A student peeled off a piece of epidermis from an onion leaf and observed it under a microscope. He counted 10 cells across the diameter of the field of view. He then placed a transparent ruler across the field of view and observed the following.



Calculate the size of one cell in µm. show your working.

(2marks)

12. Study the diagram below and answer the questions that follow.



a) Name the process represented by the arrows.
(1mark)

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b) Name the cell labelled 2. (1 mark)

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c) Name the tissue formed by each of the following cells.
(2marks)

i) 1 .....

ii) 3 .....

13. a) Define the term wilting. (1mark)

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b) When does wilting occur? (1 mark)

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c) Explain how a wilted seedling acquires an upright posture after irrigation.
(3marks)

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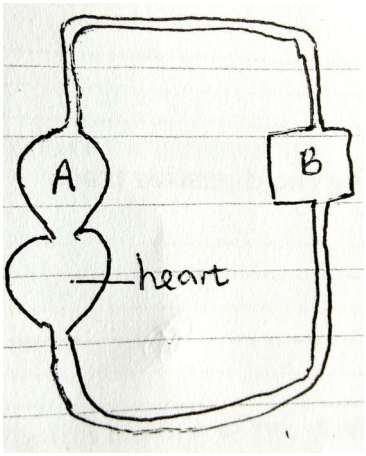
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14. The diagram below shows blood circulation in a bony fish. Use it to answer the questions that follow.



Name the structures labelled A and B.

(2marks)

A .....

B .....

15. Give three reasons why animals have specialised excretory organs.

(3marks)

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16. a) In relation to transport in animals, give a reason why carbohydrates are the best source of energy. (1 mark)

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b) Give reasons for the following

i) Veins have thin and less muscular walls.

(1mark)

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ii) Arteries lack valves. (1 mark)

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c) Explain why an amoeba does not need an elaborate transport system.
(2marks)

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17. State two types of mechanical digestion along the digestive tract.
(2marks)

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18. Name two organisms that exhibit symbiotic relationship and explain how each benefits from the association.
(2marks)

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19. a) Name two gaseous exchange structures in plants.
(2marks)

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b) How are pneumatophores adapted to their function?
(2marks)

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20. State the effects of the contraction of diaphragm muscles during inhalation in mammals. (3 marks)

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21. What is the role of blood clotting in homeostasis.
(3marks)

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22. Explain why lactic acid level reduces after exercise.

(2marks)

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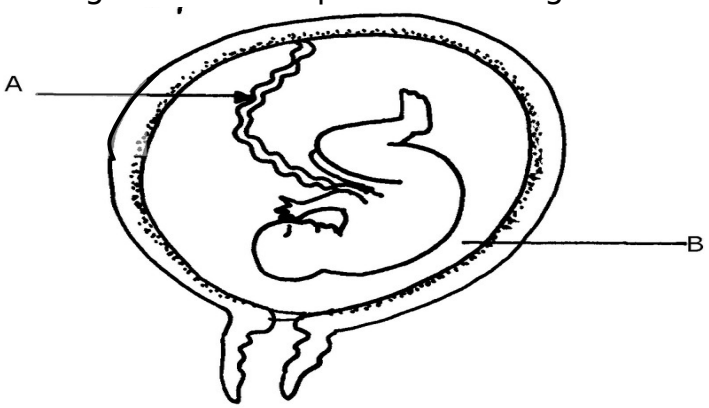
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23. The diagram below represents a stage in the development of human foetus



(a) State **one** function of each of the structures labelled **A** and **B.**

(2marks)

A

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B

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(b) Apart from the size of the foetus what else from the diagram illustrates that parturition was about to occur.

(1mark)

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24. a) Give two examples of adaptive radiation in animals.

(2marks)

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b) State two disadvantages of using fossils as evidence of evolution
(2marks)

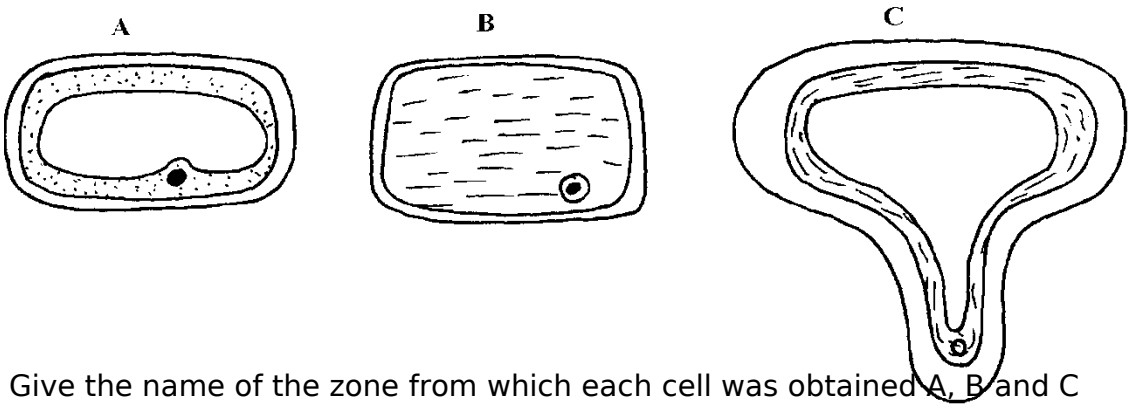
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25. The cells shown below were obtained from different parts of a young root tip:



Give the name of the zone from which each cell was obtained A, B and C .
(3marks)

A ……

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B

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C

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26. A pure Red flowered plant was crossed with a pure white flowered plant. All the F_1 generation plants had pink flowers.

(a) Give an explanation for the absence of Red and white flowered plants in the F_1 generation. (1mk)

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(b) If the F_1 generation pea plants were selfed, work out the phenotypic ratio of the F_2 generation plants.
(4marks)