Name:……..Index number:……

Candidate's signature:……. Date:……

231/1
Biology
Paper 1 (THEORY)
December 2021
2 hours.

SAMIA SUB-COUNTY JOINT EVALUATION

Kenya Certificate Of Secondary Education

INSTRUCTIONS TO CANDIDATES:

a) Write your **NAME** and **INDEX NUMBER** in the spaces provided above.
b) Sign and write the date of the examination in the spaces provided above.
c) ALL answers must be written in the spaces provided.
d) Additional pages must not be inserted.
e) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
f) Candidates should answer all questions in English.

FOR EXAMINER'S USE ONLY:

Question	Maximum score	Candidate's score
1-23	80	
Total score	80	

1. State the significance of the following characteristics of living organisms. (2marks)

   (i) Irritability

   ……

   ……

   (ii) Reproduction

   ……

   ……

2. The scientific name ***lantana camara*** refers to a green herbaceous plant. Other related plants include ***lantana trifoliate*** and ***vitex trifoliate.*** From the list, identify the plants belonging to the same genus. (2marks)

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   ……

3. Which cell organelle will be abundant in: (2marks)

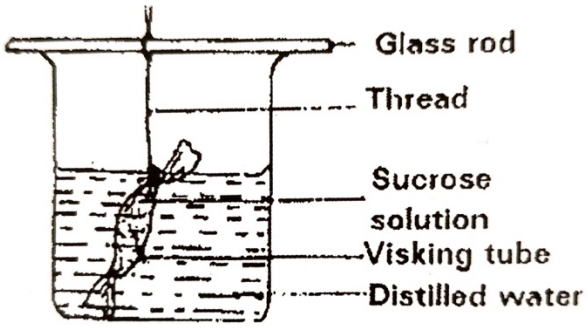
   (i) Skeletal muscle cell

   ……

   (ii) Palisade cell

   ……

4. An experiment was set up as shown below. The set up was left for 30 minutes.



   (i) State the observations made after 30 minutes. (1mark)

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   (ii) Explain the observations made in (i) above. (3marks)

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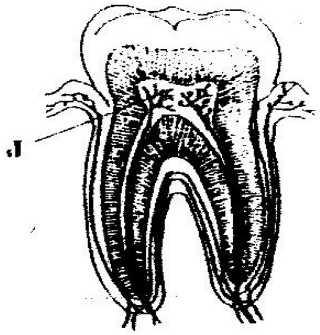
5. The diagram below represents a section though a human tooth



a) (i) Name the type of tooth shown (1 mark)

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(ii) Give a reason for your answer in (a) (i) above (1 mark)

……

……..

b) State the functions of the structures found in part labeled **J** (2 marks)

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……..……..

6. Describe what happens during the light stage of photosynthesis (3 marks)

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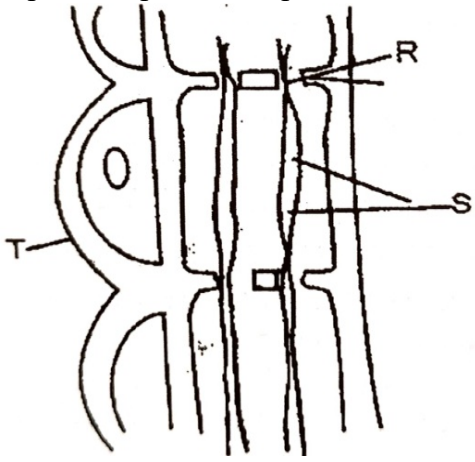
7. The diagram below represents part of the phloem tissue.



a) Name the structures labeled **R, S** and a cell labeled **T**(3amrks)

R…….....

S…….....

Cell T…….....

b) State the function of the structure labeled **S**. (1mark)

…….

8. a) What prevents blood in veins from flowing backwards? (1mark)

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b) State two ways in which the red blood cells are adapted to their functions. (2marks)

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9. Differentiate between Active immunity and Passive immunity. (2marks)

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10. State three gaseous exchange structures in terrestrial plants. (3marks)

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11. Give two reasons why accumulation of lactic acid during vigorous exercise leads to an increase in heart beat. (2marks)

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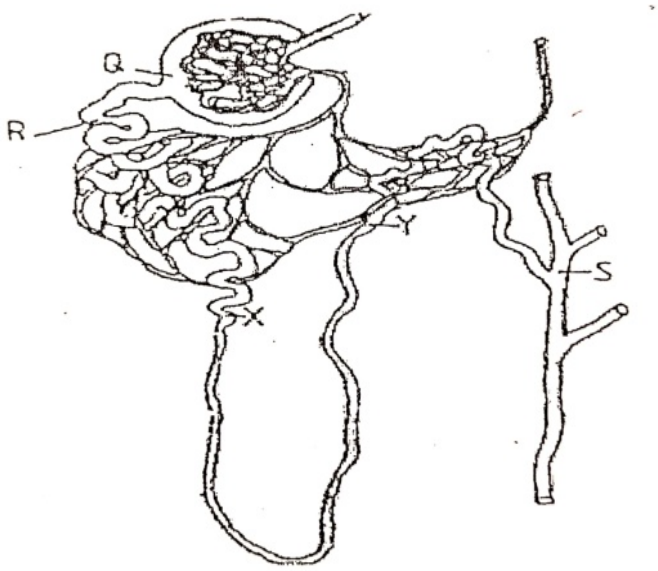
12. The diagram below illustrates part of a Nephron from a mammalian kidney.



a) Name the fluid in the part labeled **Q** (1mark)

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b) Identify the process responsible for the formation of the fluid named in (a) above. (1mark)

……

……

c) Which two hormones exert their effects in the Nephron? (2marks)

……

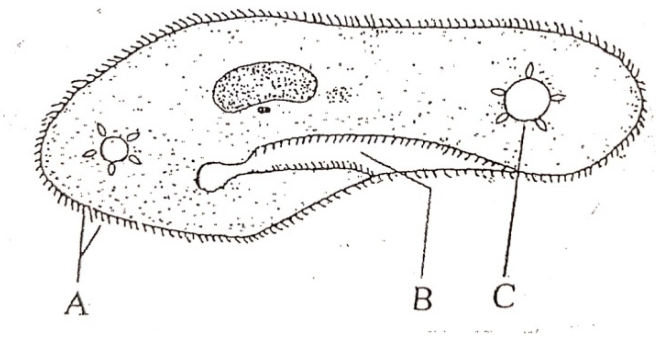
……

13. Give one economic importance of the following plant excretory product. (1mark)

(i) Tannins

……

14. The diagram below represents a living organism.



a) Name the structures labeled **A** and **C** (2marks)

A……. C……..

b) Identify the kingdom of the above organism. (1mark)

……

c) Give a reason for your answer in **(b)** above (1mark)

……

15. Name the phylum, whose members posses a notochord. (1mark)

……

16. Define the following terms: - (3marks)

(i) Ecological niche

……

(ii) Habitat

……

(iii) Carrying capacity

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17. The figure below shows the amount of **DDT** at different levels in a food chain in a lake.

a) At what trophic level is **DDT** most likely to have the highest marked effect? (1mark)

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b) Suggest two ways in which the birds might have come into contact with **DDT** (2marks)

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c) Extract and write down a food chain from the above figure. (1mark)

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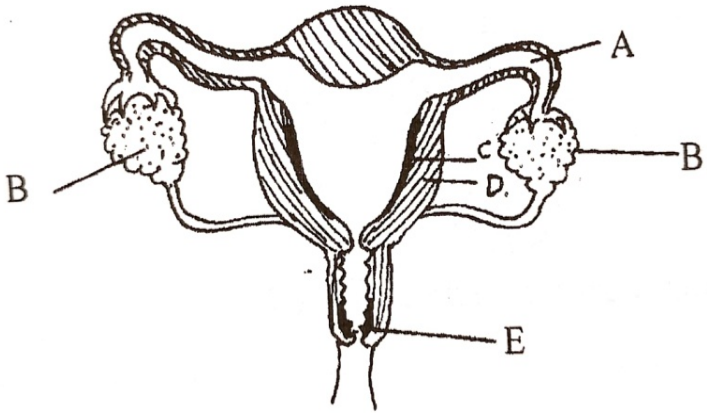
18. Study the diagram below and use it to answer the questions that follow:



a) Name the part labeled E (1mark)

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b) What are the functions of the part labeled **A**? (2marks)

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19. Explain how the following factors hinder self-pollination in plants. (2marks)

(i) Protogyny

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(ii) Dioecism

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20. a) Name the part of the flower that develops into each of the following (2marks)

(i) Seed coat.

……

(ii) Seed

……

b) State two environmental conditions that can cause seed dormancy (2marks)

……..……

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c) State two ways of breaking seed dormancy (2marks)

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d) Give one role of water in germination(1mark)

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21. Define the following terms as used in genetics. (3marks)

(i) Alleles

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(ii) Gene mutation

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(iii) Discontinuous variation

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22. State two sex-linked traits located on the **Y**- chromosome (2marks)

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23. State three limitations of using fossil records as an evidence for organic evolution (3marks)

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24. State three types of neurons (3marks)

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25. Define the following types of responses (3marks)

(i) Phototropism

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(ii) Chemotaxis

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(iii) Thigmotropism

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26. Differentiate between **support** and **movement** (2marks)

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THE END