

NAME _____ INDEX NUMBER _____

DATE _____ SIGNATURE _____

BIOLOGY231/1
FORM FOUR
2ND TERM 2019
2 HRS.

Kenya Certificate of Secondary Education
BIOLOGY 231/1
FORM FOUR 2ND TERM EXAMINATION 2019

Instructions

- Answer all the questions in the spaces provided
- Write your name and your index number in spaces provide

For Examiner's Use Only

Questions	Maximum score	Candidates score
1 - 23	80	

This paper consists of 10 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

1. Name the organelle that is likely to be found in abundance in:
(a) an enzyme secreting cell (1mark)

(b) Cells producing lipid related secretions (1mark)

(c) Areas where the cells have ruptured (1mark)

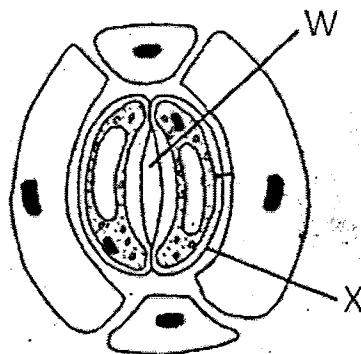
2. Identify the use of the following apparatus (3marks)
(i) Bait trap

(ii) Specimen bottle

(iii) Pitfall trap

3. State four roles played by active transport in living organisms. (4marks)

4. The diagram below shows part of plant tissue.



(a) Name cell labelled **X** and part labelled **W**. (2marks)

W

(b) State **two** adaptations of cell labelled **X** to its function. (2marks)

5.(a) Explain why leaves of most plants are thin and broad. (2marks)

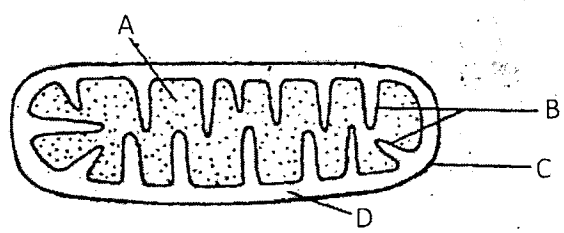
(b) State the function of the following enzymes during digestion in the stomach?
(i) Pepsin (1mark)

(ii) Renin (1mark)

6. State four ways by which the ileum is adapted for absorption of food materials? (4marks)

7. Name the causative agent of cholera. (1mark)

8. The diagram **below** represents a cell organelle.

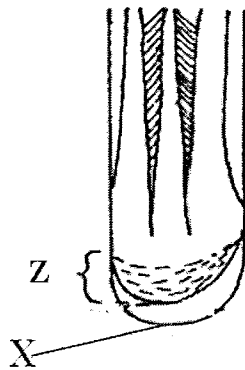


(a) Identify the organelle. (1mark)

(b) Name the part labelled **B**. (1mark)

(c) State the function of part labelled **A**. (1mark)

9. Study the diagram below and answer the following questions.



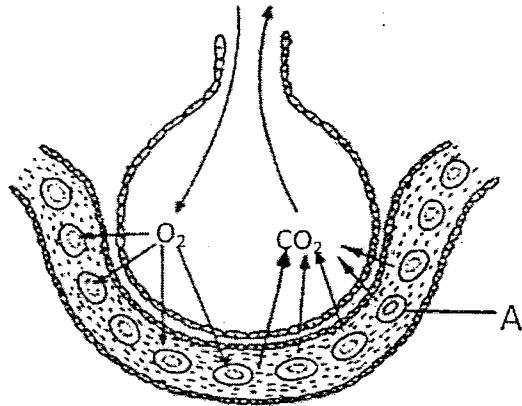
(a) (i) Identify the part labelled **X** (1mark)

(ii) State the function of part **X** above (1mark)

(b) List down **two** characteristics of cells in the region labelled **Z** (2marks)

10. State **three** regions in a plant where the end products of photosynthesis are translocated to? (3marks)

11. The diagram **below** shows the exchange of gases in alveolus.



(a) State how the alveoli are adapted to their function. (3marks)

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

12.(a) Distinguish between respiratory quotient and oxygen debt. (2marks)

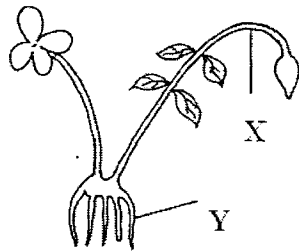
(b). Name the site where anaerobic respiration occurs in the cell. (1mark)

13. List down the processes responsible for ; (2marks)
(i) The formation of glomerular filtrate

(ii) Absence of glucose and amino acids in urine.

14. (a) What three characteristics are used to divide the phylum arthropoda into classes?
(3marks)

(b) The diagram below shows an organism from a division in Kingdom plantae. Study it and answer the questions that follow.



(i) Identify the division from which the plant was obtained. (1mark)

(ii) Name the parts labelled **X** and **Z** (2marks)

Z

15. The following table shows the estimated number of organisms recorded in a dam.

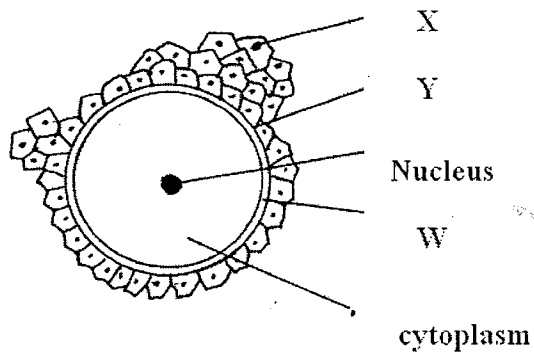
Organisms	Number
Small fish	3500
Microscopic algae	12000
Crocodiles	100
Large fish	950
Mosquito larvae	8900

(a) Construct a possible food chain for the dam? (1mark)

(b) Construct a pyramid of numbers for the given data? (1mark)

(c) Explain the shape of pyramid obtained? (2marks)

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



(a) Identify the cell (1mark)

(b) Label the parts **X**, **Y** and **W** (3marks)

Y

W

17. State three ways how HIV and AIDS is transmitted in human population (3marks)

18. (a) What is meant by the term sex linkage. (1mark)

(b) Part of one strand of DNA molecule was found to have the following sequence

(i) What is the sequence of the complimentary DNA strand? (1mark)

(ii) On a m-RNA strand copied from this DNA portion? (1mark)

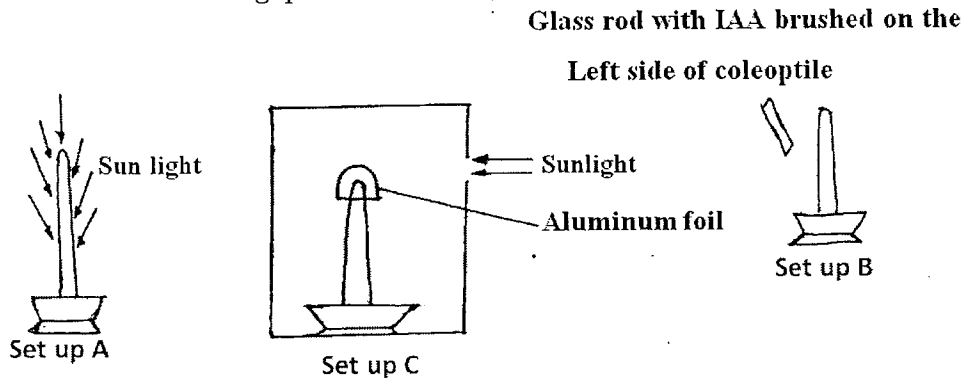
19. (a) Distinguish between homologous structures and analogous structures (2marks)

(b) State a major shortcoming in Jean Baptiste de Lamarck's theory of evolution (1mark)

20. (a). Define the term allele (1mark)

(b) Differentiate between a dominant gene and a recessive gene (2marks)

21. Oat coleoptiles were used in the experiment set ups shown below. Study the set-ups and answer the following questions.



(a) What type of response was being investigated above? (1mark)

(b) Which of the set up above would act as a control experiment? (1mark)

(c) Explain what happened in set up B after 24 hours (2marks)

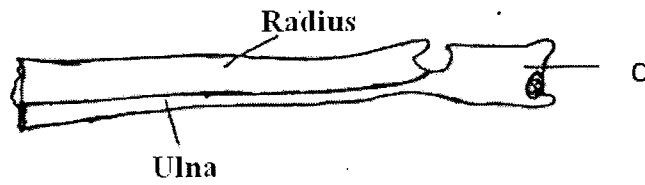
22. State how the following parts of the mammalian ear are adapted to their functions.

(i) Pinna (1mark)

(ii) Eardrum (1mark)

(iii) Cochlea (2marks)

23. Study the bones below and answer the questions that follow;



(a) Identify the function of the part labeled **Q** (1mark)

(b) Name the bone that articulates with the bone above at the proximal end (1mark)

(c) List down **two** types of support tissue in plants (2marks)
