Name ..... Index No. .....

Candidate's signature .....

Date .....

231/1

BIOLOGY
Paper 1
(Theory)
July/August 2018

Time 2 hours

FORM FOUR END OF SECOND TERM EXAM

Kenya Certificate of Secondary Education

BIOLOGY

Paper - 231/1

July/August 2018

Time: 2 hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- Answer ALL questions in the spaces provided.

EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1 - 26	80	

This paper consists of 8 printed pages
Candidates should check the question paper to ensure that all the printed pages are printed as indicated and no questions are missing.

1. Give the structure of the cell that perform the following functions.
   a. Synthesis of ribosomes (1 mark)

   .....

   b. Regulate exchange of substances in and out of the nucleus. (1 mark)

   .....

   c. Breakdown large molecules, destroy worn out organelles. (1 mark)

   .....

   .....

2. State the name given to the study of :
   a. Insect (1 mark)

   .....

   b. The cell (1 mark)

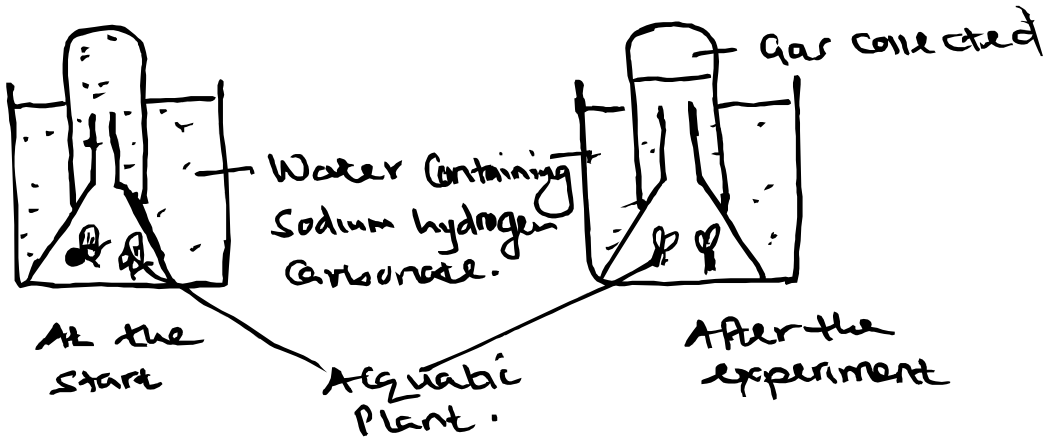
   .....

3. a. Name two raw materials for the dark stage process of photosynthesis. (2 marks)

   .....

   .....

   b. The set up shows an experiment to investigate photosynthesis.



   What gas was collected in the test tube? (1 mark)

   .....

4. Give three structural features that reduce water loss from a leaf. (3 marks)

   .....

5. a. Name the process that is involved in the uptake of mineral salts from the soil by the plants. (1 mark)

.....

b. Explain what you understand by the term diffusion gradient. (1 mark)

.....

6. a. Define the term enzyme. (1 mark)

.....

b. Give one factor that affect the rate of enzyme activity. (1 mark)

.....

7. a. Name one defect of circulatory system in humans. (1 mark)

.....

b. State three functions of blood other than transport. (3 marks)

.....

.....

.....

8. State two ways in which floating leaves of aquatic plant are adapted for gaseous exchange. (2 marks)

.....

.....

9. List the changes that takes place during inhalation in the breathing cycle of mammal in the following.
a. Rib cage (2 marks)

.....

.....

b. Diaphragm (1 mark)

.....

10. Study the word equation below :
Glucose $\rightarrow$ Ethanol + Carbon (iv) Oxide

a. Name the process shown in the equation above. (1 mark)

.....

b. Suggest the organism (s) in which it takes place. (1 mark)

.....

c. Give one application of the process in industry. (1 mark)

.....

11. Name the substances that do not undergo digestion but are absorbed directly from the alimentary canal to the blood stream. (2 marks)

12. State one use of each of the following plants excretory products.
a. Tannis (1 mark)

.....

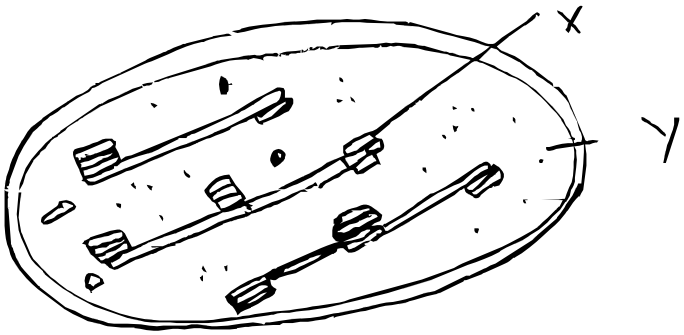
b. Colchicines (1 mark)

.....

c. Quinine (1 mark)

.....

13. The diagram below represent a cell organelle.



i. Name the part labeled Y. (1 mark)

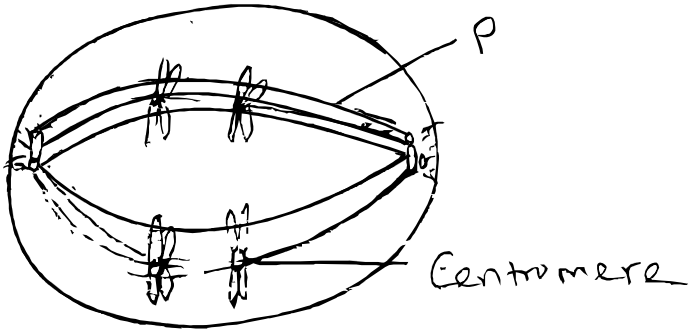
.....

ii. State the function of the part labeled X. (1 mark)

.....

.....

14. The diagram below represent a stage during cell division.



a. Identify the stage of cell division. (1 mark)

.....

b. Give two reasons for your answer in (a) above. (2 marks)

.....

.....

c. Name the structure labeled P. (1 mark)

.....

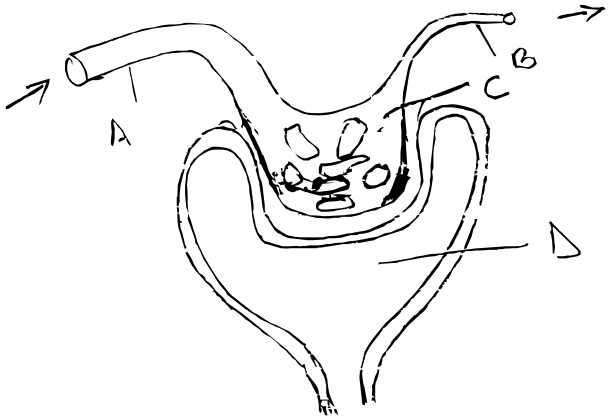
15. State the importance of each of the following features of mammalian ileum.
a. Highly coiled. (1 mark)

.....

b. Long. (1 mark)

.....

16. The figure below illustrates a part of a kidney nephron.



a. Name the parts labeled A and D. (2 marks)

A .....

D .....

b. State one observable difference between part A and B. (1 mark)

.....

c. Name two components found in A but absent in part D. (2 marks)

.....

.....

17. The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.
a. Name the evolutionary process that may have given rise to these structures. (1 mark)

.....

b. What is the name given to such structures. (1 mark)

.....

c. Give two examples of vestigial organs in man. (2 marks)

.....

.....

18. a. State three characteristics of monera that are not found in other kingdoms. (3 marks)

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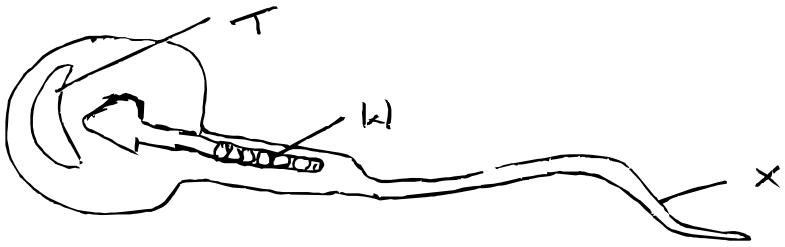
.....

.....

b. Name the class to which a termite belong. (1 mark)

.....

19. The diagram below represent a spermatozoa.



a. Name the structures labeled T and X. (2 marks)

T

.....

X

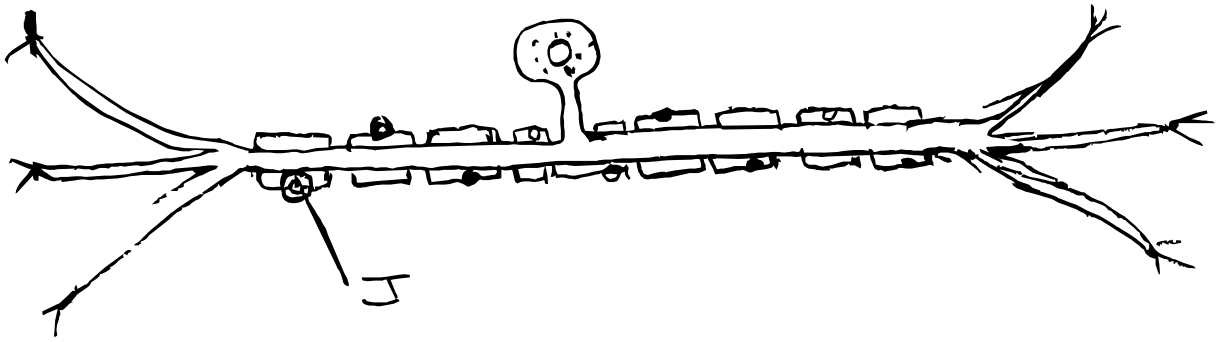
.....

b. State two adaptations of the spermatozoa for its function. (2 marks)

.....

.....

20. The diagram below illustrate a nerve cell.



a. (i) Identify the type of cell illustrated. (1 mark)

.....

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

.....

b. i. Identify the part labeled J. (1 mark)

.....

ii. State the function of the part in b (i) above. (1 mark)

.....

.....

21. a. What is metamorphosis? (1 mark)

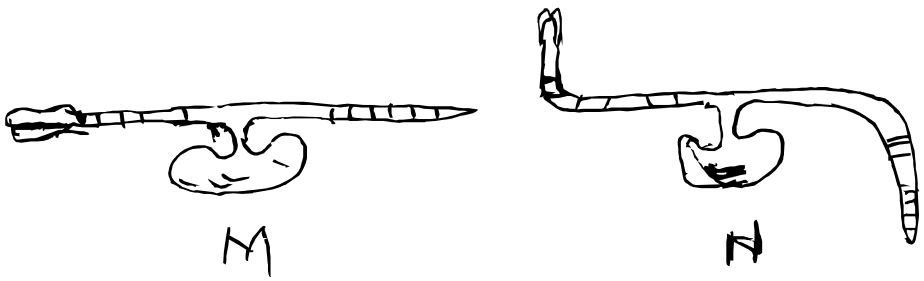
.....

b. What is the biological importance of the larval stage during metamorphosis? (2 marks)

.....

.....

22. An experiment was set to investigate a certain aspect of a response. A seedling was put on a horizontal position as shown in figure M below. After 24 hours the set up was as shown in figure N.



a. Name the response exhibited. (1 mark)

.....

b. Explain the curvature of the shoot upward. (3 marks)

.....

.....

.....

.....

23. a. A student visiting a game park observed an adult elephant flapping its ears twice as much as its calf in order to cool its body when it is hot. Explain. (2 marks)

.....

.....

b. Explain why some desert animas excrete uric acid rather than ammonia. (2 marks)

.....

.....

.....

24. a. What is seed dormancy? (1 mark)

.....

b. Name a growth inhibitor in seed. (1 mark)

.....

c. Differentiate between hypogeal and epigeal germination in seeds. (2 marks)

Hypogeal	Epigeal

25. Name the causative agent of the following diseases in man.
a. Candidiasis (1 mark)

.....

b. Syphilis (1 mark)

.....

26. To estimate the population of tilapia using the capture recapture method, 60 fish were captured and released. In the second capture out of 72 fish, 10 had been marked. Calculate the estimated population of tilapia. (show your working) (2 marks)

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