

Name Index No.

Candidate's signature

231/1

Date

BIOLOGY

Paper 1

(Theory)

October/November 2016

Time 2 hours

KANDARA SUB-COUNTY FORM 3 JOINT EVALUATION

Kenya Certificate of Secondary Education

BIOLOGY

Paper - 231/1

October /November 2016

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.
- Answers must be written in the spaces provided in the question paper.
- Additional pages **must not** be inserted.
- Examinations should be written in English

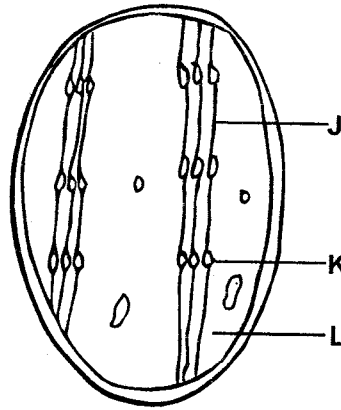
EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1 - 31	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. Study the organelle below and answer the questions that follow.



a) Name the organelle. (1 mark)

Chloroplast

b) Identify the structure labelled J and K. (2 marks)

J - Stroma

K - Granum

2.a) State the function of a pitfall trap. (1 mark)

To catch crawling insects

3. Name two classes of phylum arthropoda that has a cephalothorax. (2 marks)

4. Give two main differences between kingdom plantae and kingdom fungi. (4 marks)

Kingdom Plantae	Kingdom fungi
- They are green	- Non-green
- They make their own food	- Do not make their own food
- They reproduce sexually	- Reproduce asexually

5. a) What is the effect of low temperature on enzyme activity? (1 mark)

b) Name two other factors that may reduce the rate of enzyme activity. (2 marks)

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6. In humans name the hormone that:

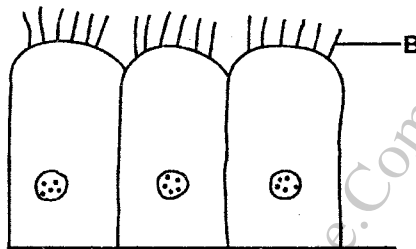
a) Stimulate contraction of the uterus during birth. (1 mark)

.....
.....

b) Stimulate development of graafian follicle. (1 mark)

.....
.....

7. The diagram below shows a tissue of an animal.



a) Name the tissue. (1 mark)

..... Epithelial tissue

b) State the function of part labelled B. (1 mark)

..... To trap dust particles

c) Name a mammalian organ where this type of epithelium is found. (1 mark)

..... Ileum

8. Name the processes responsible for the following

a) Formation of glomerular filtrate. (1 mark)

..... Ultrafiltration

b) Absence of glucose and amino acids in urine. (1 mark)

..... Active transport

9. Name the organelles that perform each of the following functions.

a) Synthesis of protein. (1 mark)

..... Ribosomes

b) Cell division and formation of cilia and flagellum. (1 mark)

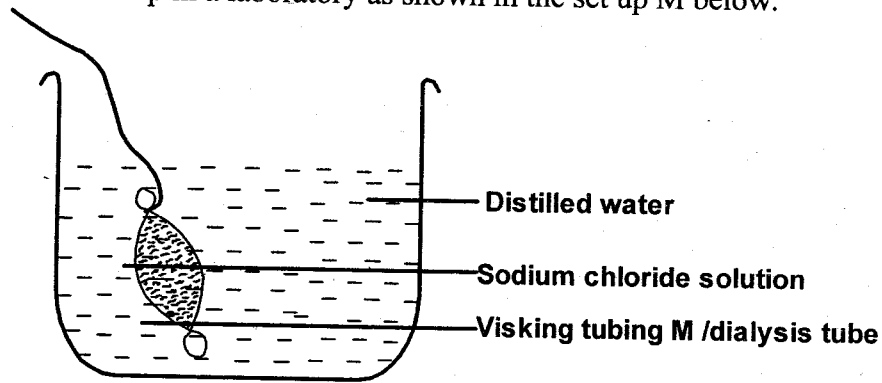
..... Centrioles

.....

.....

.....

10. An experiment was set up in a laboratory as shown in the set up M below.



a) What will happen to the visking tubing M after two hours? (1 mark)

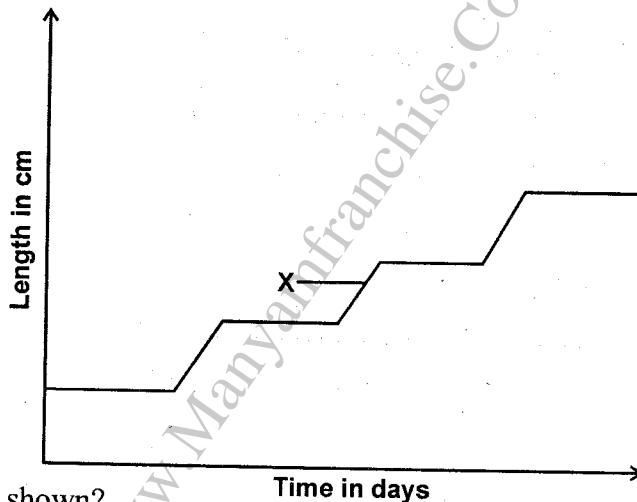
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b) Explain the observation made in set up M after the two hours. (2 marks)

.....

.....

11. Study the graph below and answer the question that follow.



a) What type of growth is shown? (1 mark)

.....

b) What is the name used to describe process X. (1 mark)

.....

c) Name a phylum that exhibit the said type of growth. (1 mark)

.....

12. State one economic importance of each of the following plant excretory products.

a) Tannin (1 mark)

.....

b) Quinine (1 mark)

.....

13. Name three biotic factors that affect living organisms in an ecosystem. (3 marks)

.....

.....

.....

14. State the causative agent of

a) Cholera

(1 mark)

.....

b) Candidiasis

(1 mark)

.....

15.a) State two functions of blood other than transport.

(2 marks)

.....

.....

b) Name a defect of the circulatory system.

(1 mark)

.....

16. Describe what happens during the light stage of photosynthesis.

(3 marks)

.....

.....

.....

17. The ovaries of an expectant woman can be removed after the fourth month of pregnancy without terminating the pregnancy. Explain.

(2 marks)

.....

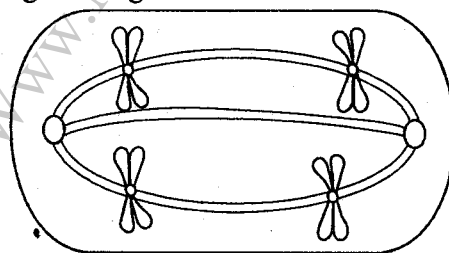
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18. Name the antigens present in red blood cells of a person whose blood group is B positive. (2 marks)

.....

.....

19. The diagram below represents a stage during cell division.



a) Name the stage of cell division.

(1 mark)

.....

b) Give a reason for your answer.

(1 mark)

.....

c) State the significance of this stage of cell division in living organisms.

(1 mark)

.....

20. In an experiment the concentration of ions in the cell sap of reeds growing in swampy area and the water in the swamp were determined. The data below was obtained.

Study it and answer the questions that follow.

Sample	Na ⁺	Mg ²⁺	Cl ⁻	SO ₄ ²⁻
Cell sap	50	11	101	13
Sample water	1.2	30	10.2	0.67

a) Name the process by which uptake of the following ions by the reeds occurs. (2 marks)

Na⁺ ions

Mg²⁺ ions

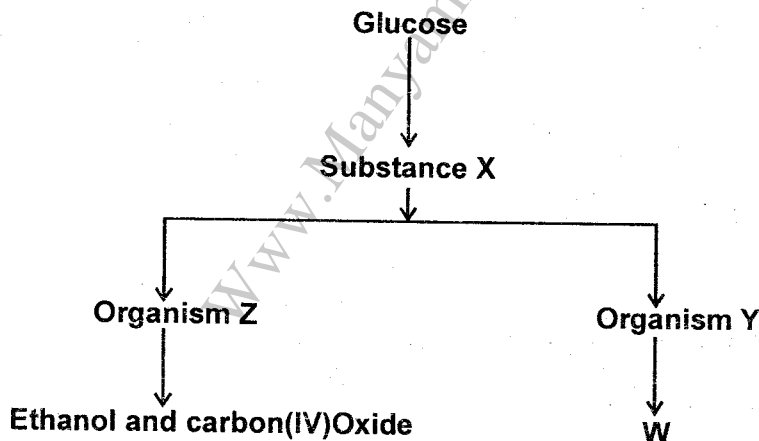
b) What effect would reduced oxygen supply have on the uptake of sulphate ions. (2 marks)

21.a) Name the gaseous exchange structure in woody plants. (1 mark)

b) Explain why the rate of breathing is faster in high altitude than low altitude. (2 marks)

22. Account for the decrease of biomass in the successive trophic levels. (2 marks)

23. The diagram below represents respiration in living organisms.



a) Identify the substances labelled W and X. (2 marks)

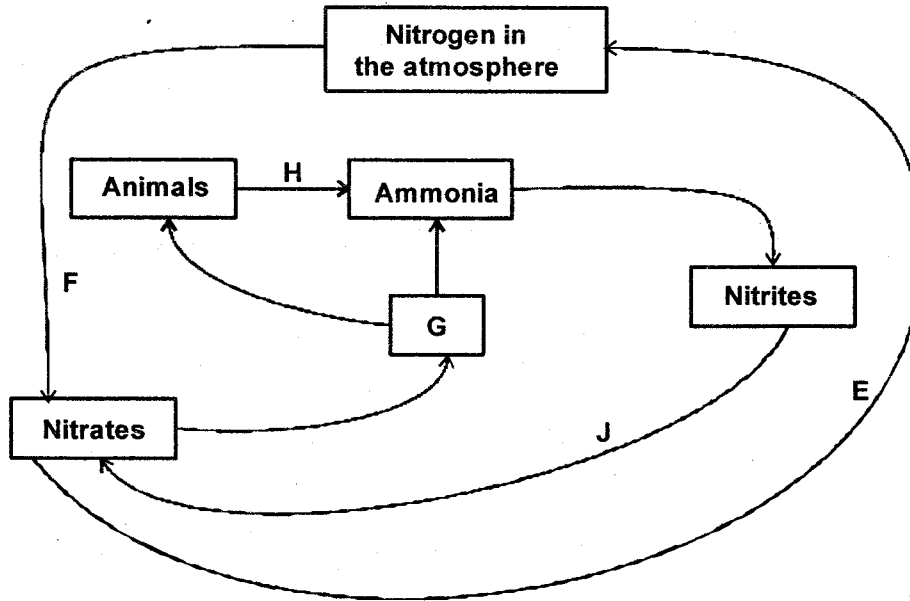
X

W

b) Name the group of organisms represented by Z. (1 mark)

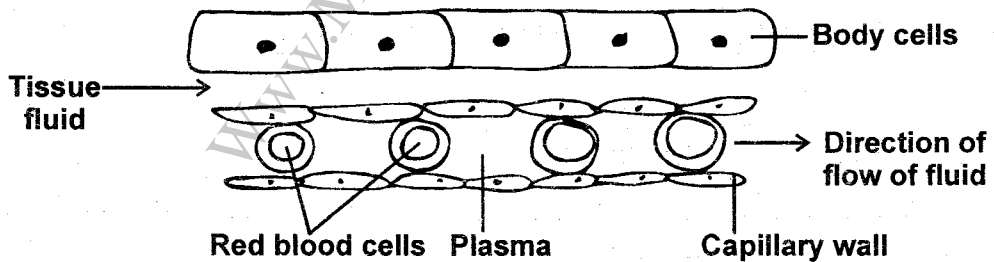
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24. The diagram below represents a simplified nitrogen cycle.



- a) Name the organism the cause process E and J. (2 marks)
- E
- J
- b) Name the processes represented by F and H. (2 marks)
- F
- H
- c) Name the group of organisms represented by G. (1 mark)
-

25. The diagram below shows gaseous exchange tissues.



- a) Name the gas that diffuses:
- i) To the body cells. (1 mark)
-
- ii) From body cells. (1 mark)
-
- b) Which compound dissociates to release the gas named in a(i) above? (1 mark)
-
-
-

26. Define the following terms.

i) Ecological niche. (1 mark)

ii) Autecology. (1 mark)

27. Adult elephants flap their ears twice as much as their calves in order to cool their bodies when it is hot. Explain. (2 marks)

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

29. a) What is the role of contractile vacuole found in aquatic micro-organisms. (1 mark)

b) Give a structural modification of a nephron in the kidney of desert animals. (1 mark)

c) Name the hormone responsible for water reabsorption in Mammals. (1 mark)

30. Name three forces involved in upward conduction of water in plants. (3 marks)

31. State one role of a fruit to a plant. (1 mark)