

NAME..... INDEX NO.....
SCHOOL..... CANDIDATE'S SIGNATURE.....
DATE.....

231/1
BIOLOGY
PAPER 1
(THEORY)
JULY/AUGUST, 2013
TIME: 2 HOURS

KIRINYAGA CENTRAL DISTRICT JOINT EXAMINATION - 2013

Kenya Certificate of Secondary Education
BIOLOGY
PAPER 1
(THEORY)
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

Write your **Name**, **Index Number** and **School** in the spaces provided above.
Sign and write the **date** of examination in the spaces provided above.
Answer **all** the questions in the spaces provided.

FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1 - 22	80	

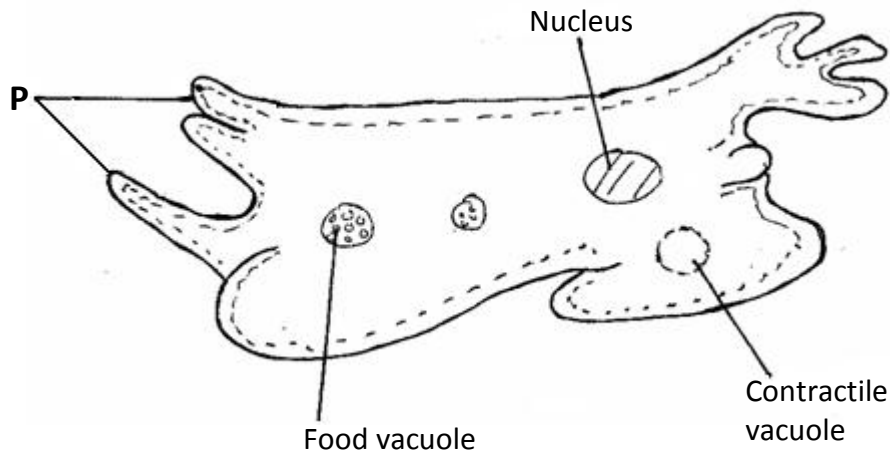
1. (a) Define the term 'parthenocarpy'. (1mk)

(b) Name **two** plant growth hormones that promote parthenocarpy. (2mks)

2. Name the organelle that performs each of the following functions in a cell
(i) Protein synthesis. (1mk)

(ii) Transport of cell secretions. (1mk)

3. The diagram **below** represents a certain organism.



(a) Identify the kingdom to which the organism belongs. (1mk)

(b) Identify the part labeled **P**. (1mk)

(c) What is the function of contractile vacuole? (1mk)

4. Other than carbon (IV) oxide, name other products of anaerobic respiration. (2mks)

5. (a) Name the fluid that is produced by sebaceous glands. (1mk)

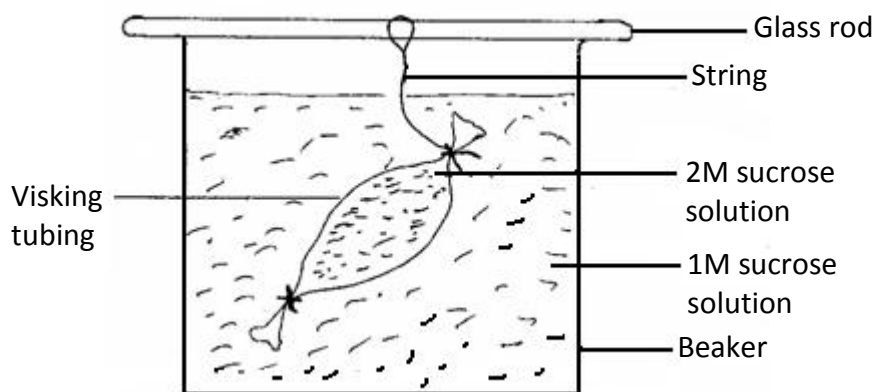
(b) State **two** functions of sweat on the human body. (2mks)

6. (a) State **two** characteristics that are used to divide the phylum arthropoda into classes. (2mks)

(b) Name the class with the largest number of individuals in the phylum arthropoda. (1mk)

7. Why are people with blood group O referred to as universal donors? (1mk)

8. An experiment was set up as shown in the diagram **below**.



(a) Which process is being investigated by the above experiment? (1mk)

(b) State the expected results. (1mk)

(c) Explain your answer in (b) above. (3mks)

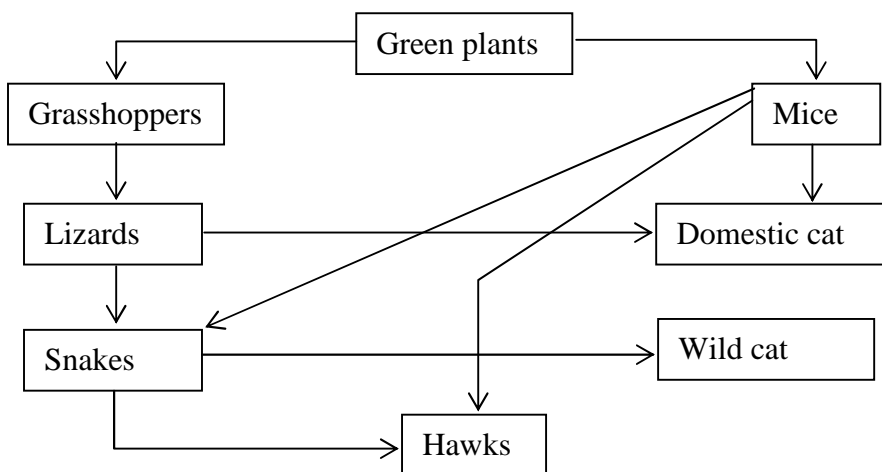
9. (a) What causes the following diseases?

(i) Diabetes mellitus. (1mk)

(ii) Diabetes insipidus. (1mk)

(b) How would you test that someone is a victim of diabetes mellitus in the laboratory. (3mks)

10. The following chart shows a feeding relationship in ecosystem.



(a) Construct **two** food chains ending with a tertiary consumer in each case. (2mks)

(b) Which organism has the largest variety of predator in food web? (1mk)

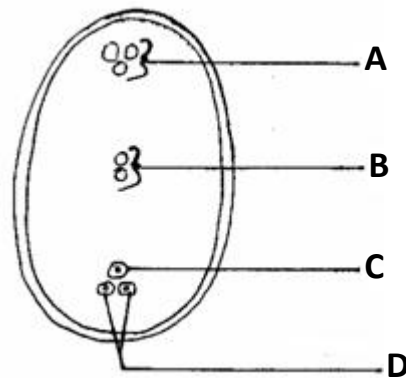
- (c) Suggest **three** ways in which the ecosystem would be affected if there was prolonged drought. (3mks)

11. A man of blood group A and a woman of blood group B get married.

- (a) Using a punnet square show the possible blood groups of their offspring's if both of them are heterozygous for their blood groups. (4mks)

- (b) What is the probability that one of the children will be blood group O? (1mk)

12. The diagram **below** shows a mature embryo sac of a flowering plant.



- (a) Name the parts labeled **A** and **D**. (2mks)

A _____

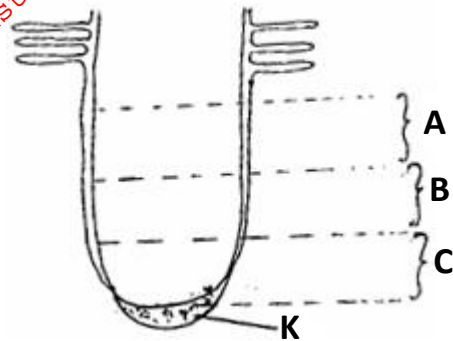
B _____

- (b) What is the function of the structure labeled B. (1mk)

13. (a) Name the tissues that transport water in plants. (1mk)

(b) How is the tissue you named in (a) above strengthened? (1mk)

14. The diagram below shows regions of growth in a root. Study it and answer the questions that follow.



(a) Name the zones labeled.

A _____ (1mk)

B _____ (1mk)

C _____ (1mk)

(b) State the function of part K. (1mk)

15. The enzymes pepsin and trypsin are secreted in their inactive forms.

(a) Give the names of these inactive forms. (2mks)

(b) Why are they secreted in an inactive form? (1mk)

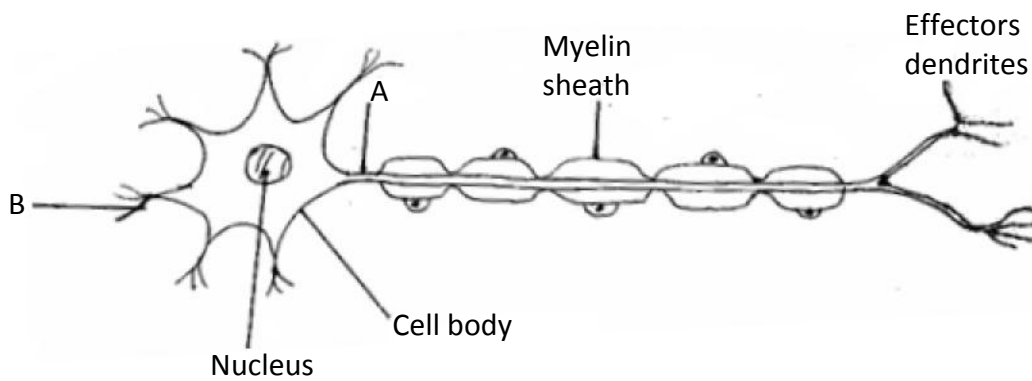
16. (a) Define the following terms: (1mk)

(i) Evolution. (1mk)

(ii) Analogous structures. (1mk)

(b) Describe the importance of comparative embryology as evidence of evolution. (3mks)

17. Study the diagram **below** of a neurone in human being.



(a) Identify the neurone. (1mk)

(b) Name the parts labeled.

A _____ (1mk)

B _____ (1mk)

(c) Using an arrow indicate the direction of movement of a nerve impulse along the neurone (1mk)

18. Study the diagram of the mammalian tooth **below** and answer the questions that follow.

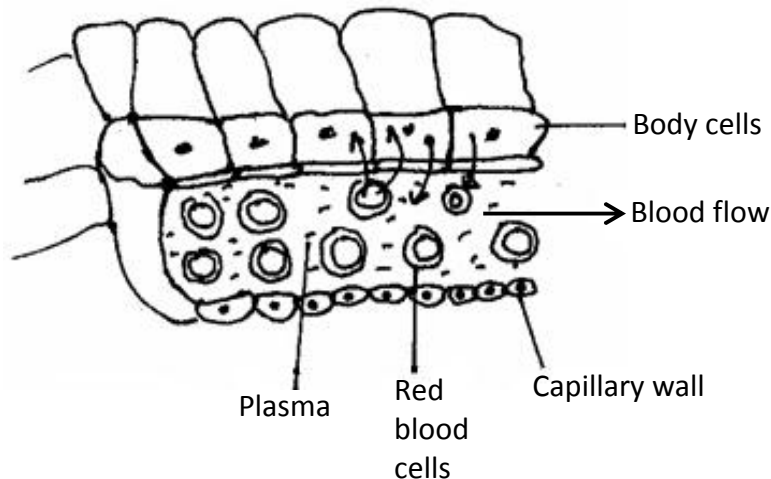


(a) Identify the tooth. (1mk)

(b) Give a reason for your answer in (a) above. (1mk)

(c) State **one** adaptation of the tooth to its function. (1mk)

19. The diagram **below** shows gaseous exchange in tissues.



(a) (i) Name the gas that diffuses.
I To the body cells _____ (1mk)

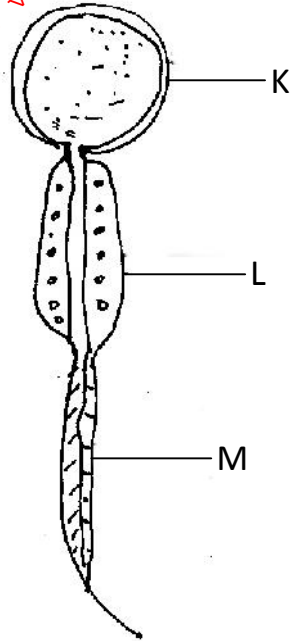
II From body cells _____ (1mk)

(b) Which compound dissociates to release the gas named in (a)(i) **above**. (1mk)

(c) What is tissue fluid?

(1mk)

20. The diagram **below** represents one of the specialized cells found in the human body.



(a) Identify the cell.

(1mk)

(b) What is the function of the cell?

(2mks)

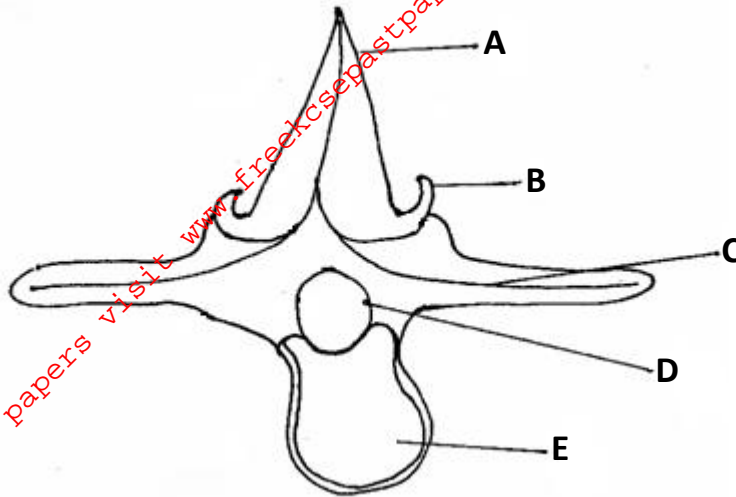
(d) Name the parts labeled.

K _____ (1mk)

L _____ (1mk)

M _____ (1mk)

21. The diagram **below** represents the anterior view of a certain vertebra shown **below**.



(a) With a reason, identify the type of vertebra shown **above**. (2mks)

(b) Name the parts labeled.

(i) **A** _____ (1mk)

(ii) **D** _____ (1mk)

(c) State the function of part **E**. (1mk)

22. Complete the table **below** on mineral nutrition in plants.

Mineral element	Function	Deficiency symptoms
	Synthesis of proteins and protoplasm	Stunted growth and yellowing of leaves
Calcium		
	Forms part of chlorophyll	Yellowing of leaves

(4mks)