

NAME:.....INDEX .....DATE.....  
SCHOOL:.....SIGNATURE.....

231/1  
BIOLOGY  
PAPER 1  
JULY / AUGUST, 2010  
2 HOURS

## KISUMU NORTH AND EAST DISTRICTS JOINT TEST Kenya Certificate of Secondary Education 2010

231/1  
BIOLOGY  
PAPER 1  
JULY / AUGUST 2010

**INSTRUCTIONS TO CANDIDATES:**

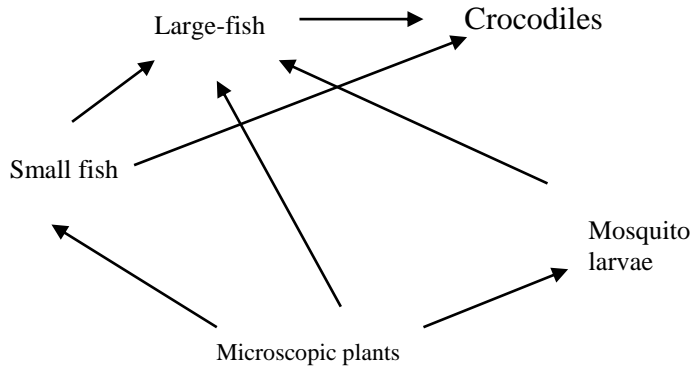
- ❖ Write your name and index number in the spaces provided above.
- ❖ Sign and write the date of examination in the spaces provided above.
- ❖ Answer **all** the question in the spaces provided above.

**For Examiner's Use Only**

Question	Maximum scores	Candidate scores
1- 26	80	

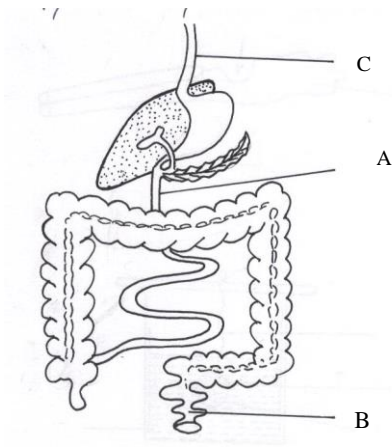
**Answer all questions in this question paper in the spaces prided**

1. Name the branch of biology that deals with the study of zooplanktons. (1 mark)  
 .....
2. Name a cell structure responsible for the following functions in a cell. (1 mark)
  - a) Mechanical support..... (1 mark)
  - b) Site of synthesis of RNA..... (1mark)
3. The following diagram shows a feeding relationship in an ecosystem.



- a) From the diagram, write down a food chain with crocodile as the tertiary consumer. (1 mark)  
 .....
- b) Which of the above organism would you expect to have the highest population? (1 mark)  
 .....
- c) Give reason for your answer in (b) above (1mark)  
 .....

4. The diagram below shows part of alimentary canal of a mammal.



- (i) Name the parts labeled.
  - A..... (1 mark)
  - C..... (1 mark)

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

.....

5. a) Define accommodation of the eye. (1 mark)

.....

.....

b) State two causes of hypermetropia in humans. (1 mark)

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.....

6. a) What is meant by the terms

(i) Epigynous flower (1 mark)

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.....

(ii) Staminate flower (1 mark)

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b) How are the male parts of wind pollinated flowers adapted to their functions?

(2 marks)

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7. a) Distinguish between homoiotherms and poikilotherms in homeostasis. (2 marks)

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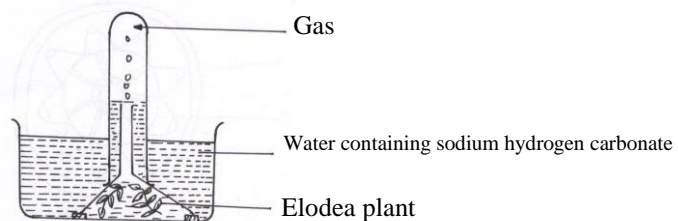
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b) Explain the significance of thermoregulation in living organism. (1 mark)

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8. The experimental set-up shown below was placed outside for some days.



The rate of bubbles given off per unit time from the plant was measured. The results obtained are as shown below.

Days	weather	Average number of bubbles per minute
1	Cloudy and dull	4
2	Quite sunny	15
3	Bright sunshine	25
4	Less cloudy	8

a) Explain why the plant produces bubbles in the experiment above. (2marks)

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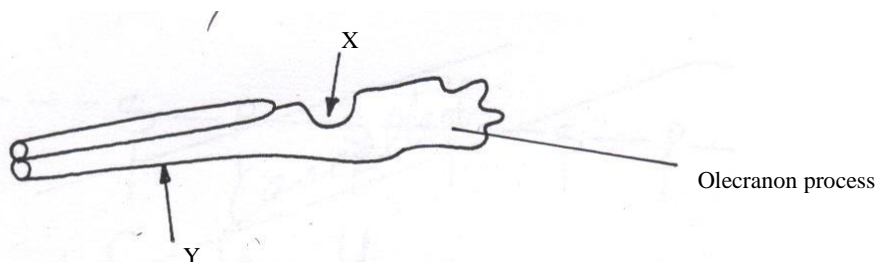
b) State the role of sodium carbonate in the set-up. (1 mark)

.....

c) What conclusion can be drawn from the results obtained in this experiment? (1 mark)

.....

9. The diagram below represents a bone found in humans



a) (i) Identify the bone..... (1 mark)

(ii) Name the part labeled X and Y. (2 marks)

X.....

Y.....

b) State the characteristic that is common to all cervical vertebrae but is absent in other vertebrae. (1mark)

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 .....

10. a) Describe what happens to the intercostals muscles during inspiration in man.

(2marks)

.....  
 .....

b) Explain how aquatic submerged plants are adapted to gaseous exchange. (1mark)

.....

11. The following key can be used to identify the five kingdom of classification.

1. a) Has nuclear membrane .....go to2

b) Nuclear membrane absent..... Kingdom A

- 2. a) Body form made of hyphae..... Kingdom B
- b) Body form without hyphae..... go to 3
- 3. a) Some unicellular, others multi-Cellular..... Kingdom C
- b) All multi-cellular..... Go to 4
- 4. a) Feed autotrophically..... Kingdom D.
- b) Feed hetrotrophically..... Kingdom E

a) Identify the kingdom.

(i) C..... (1 mark)

(ii) E..... (1 mark)

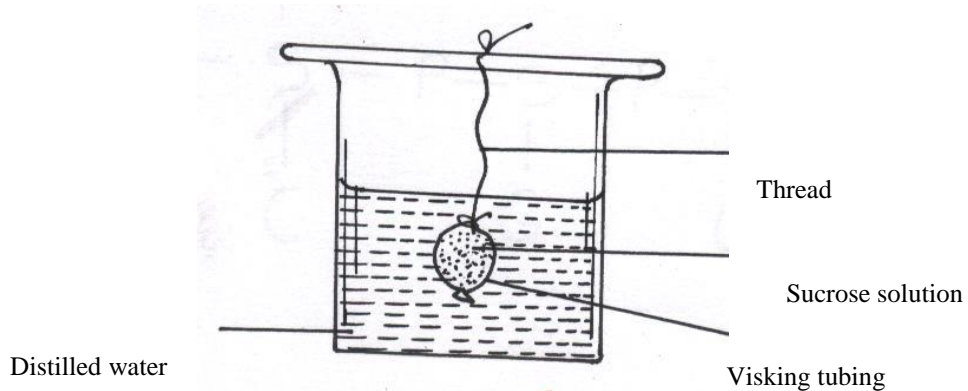
b) Apart from the characteristics mentioned in the key above, state two distinguishing features of Kingdom B. (2 marks)

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 .....

12. a) Temperature affects the rate of osmosis. Explain. (2 marks)

.....  
 .....

b) An experiment was set-up as shown.



The set-up was left for 20 minutes.

i) State the expected results (1mark)

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ii) Explain your answer in (a) above. (3marks)

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13. Explain Darwins theory of natural selection. (3marks)

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14. A blood transfusion was to be carried out to a patient who was badly injured in a road accident. His plasma contained antibody a.

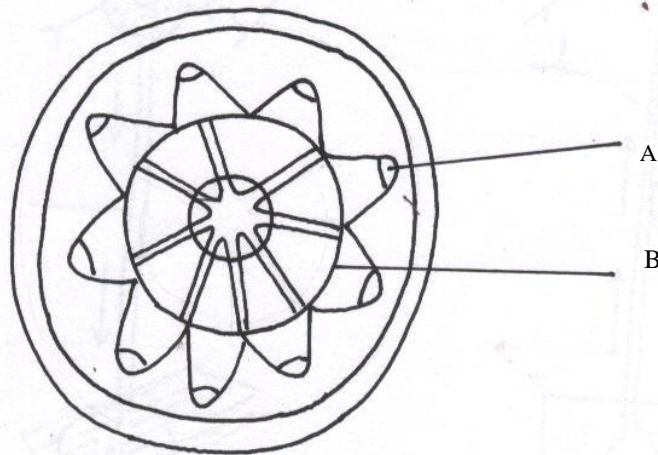
a) Name two blood groups who would be donors. (2marks)

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 .....

b) Explain your answer in (a) above. (1mark)

.....  
 .....

15. The diagram below shows some growth in a plant.



a) Name the type of growth shown in the diagram. (1mark)

.....

b) Name the part labeled A..... (1mark)

c) What is the function of the part labeled B (1mark)

.....

16. Give the function of each of the following parts of the ear.

a) (i) Ear ossicles..... (1mark)

(ii) Tympanic membrane..... (1mark)

b) Blowfly maggots (larvae) quickly burrow into decaying flesh as soon as they are exposed to light. Name this type of response. (1mark)

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17. Four organisms were classified using the binomial nomenclature as below.

Organism.	Name
V	<u>Drosophila melanogaster</u>
W	<u>Canis lupus</u>
X	<u>Rana temporaria</u>
Y	<u>Canis familiaris</u>

a) Name two organisms that are closely related. (2marks)

.....

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

.....

18. a) Name the hormone responsible for ovulation in human females. (1marks)

.....

b) Give two roles of the placenta. (2marks)

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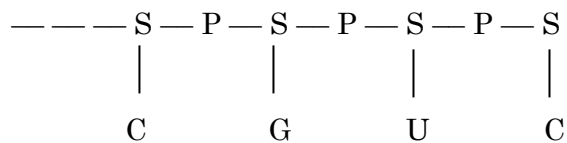
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19. Name the disease caused by:

a) *Entamoeba histolytica*.....(1mark)

b) *Schistosoma mansoni* .....(1mark)

20. The figure below is a structural diagram of a portion from nucleic acid strand



a) Giving a reason, name the nucleic acid to which the portion belongs.

Name.....

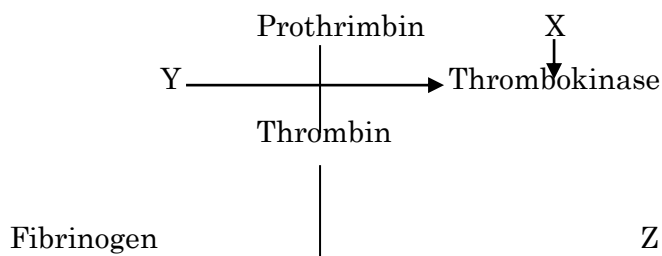
Reason..... (2 marks)

b) Write down the sequence of bases of a complimentary strand to that shown above.

(1 mark)

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21. The chart below is a summary of a blood clotting process.



a) Name the blood cell represented by X ..... (1 mark)

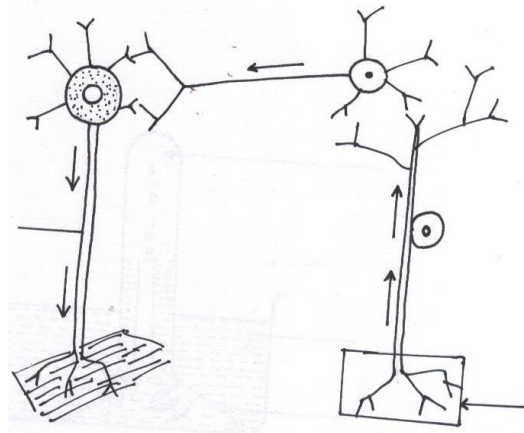
b) Name the metal ion represented by Y.....(1mark)

c) What is the biological importance of the blood clotting process (2marks)

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22. The diagram below represents a reflex arc.



a) Name the parts labeled X and Y. (2marks)

X.....  
 Y.....

b) State two adaptations of X to its functions. (2marks)

.....  
 .....

23. State the role of the following bacteria in the Nitrogen cycle.

(i) Nitrosomonas..... (1mark)

(ii) Nitrobacter..... (1mark)

24. State the structures that adapt the fish for:

a) Forward movement.....

b) Fast movement..... (2marks)

25. State three adaptations of fruits and seeds to animal dispersal.

(i) .....

(ii) .....

(iii) ..... (3marks)

26. Suggest an explanation for the increased number of red blood cells found in the blood of people normally living at high altitude. (2marks)

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27. What is the harm caused by skin lightening cosmetics. (2marks)

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28. Other than root pressure, state two other forces involved in transportation of water and mineral salts. (2marks)

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