

Name..... Index No.....  
231/1  
BIOLOGY Date.....  
(Theory) Sign.....  
JUNE 2014.  
**2 hours**

**BUSIA COUNTY EXAMINATION- 2014**  
*(Kenya Certificate of Secondary education)*

***Instructions***

- Write your Name and Index Number in the spaces provided above.
- Write the date of the examination in the space provided above.
- Answer all the questions in the spaces provided.

***For Examiner's use only***

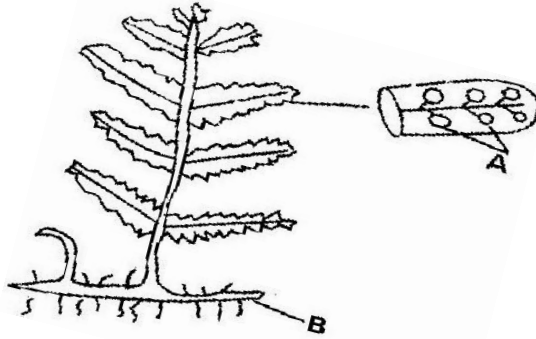
Question	Maximum Score	Candidate's Score
1-25	80	

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

1. Name the tissues whose cells are thickened with:  
a) Cellulose and pectin. (1mk)

b) Lignin. (1mk)

2. The diagram below represents a fern.



(a) Name Parts labeled A and B. (2mk)

A .....

B .....

(b) To which division does the plant belong? (1mk)

3. State three measures that can be taken to control infection of man by protozoan parasites ( 3mk)

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4. Explain how the following factors hinder self pollination in plants:  
(i) Protogyny (1mk)

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(ii) Dioecism (1mk)

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5. Explain the likely effect on humans and other organisms of untreated sewage discharged into water body that supplies water for domestic use. (3mk)

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6. Name two structures in herbaceous stems that enhance their support. (2mk)

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7. a) Define the term immunity. (1mk)

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b) Distinguish between natural immunity and acquired immunity. (1mk)

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c) Identify one immunizable disease in Kenya. (1mk)

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8. State three differences between osmosis and active transport. (3mk)

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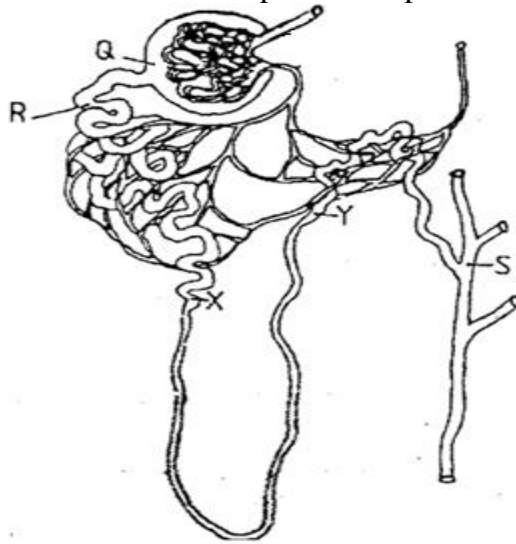
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9. The diagram below illustrates part of a nephron from a mammalian kidney.



a) Name the fluid found in the part labeled Q. (1mk)

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b) Identify the process responsible for the formation of the fluid named in (a) above. (1mk)

(1mk)

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c) Which two hormones exert their effect in the nephron? (2mk)

(2mk)

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10. State three characteristics of members of kingdom Monera that are not found in other kingdoms.

(3mk)

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11. What is meant by the following biological terms?

i) Crenation (1mk)

(1mk)

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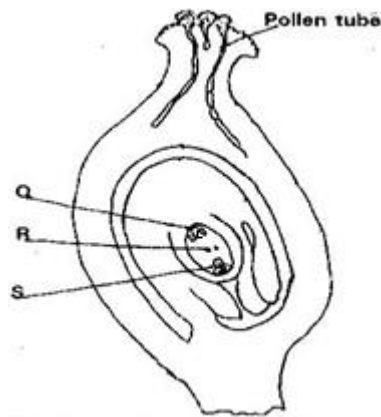
ii) Haemolysis (1mk)

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iii) Plasmolysis (1mk)

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12. The diagram below shows a stage during fertilization in flowering plant.



a) Name the parts labeled Q, R, and S. (3 mk)

Q .....

R .....

S .....

b) State the function of the pollen tube. (1 mk)

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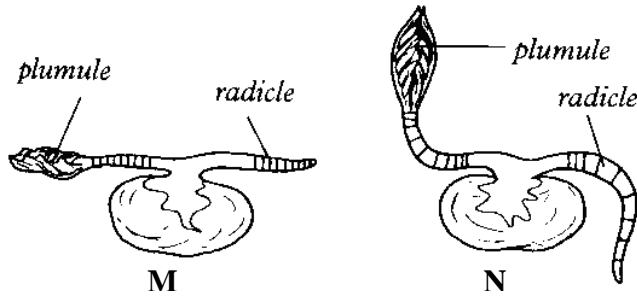
13. a) State the major factor in the 'Global warming' experienced in the world today. (1mk)

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b) Suggest two ways of reducing the Global warming. (2mk)

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14. An experiment was set to investigate a certain aspect of 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. (1mk)

b) Explain the curvature of the shoot upwards. (3mk)

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15. 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. (1mk)

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b) What is the name given to such structures? (1mk)

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

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16. a) Name a protein and vitamin involved in blood clotting.

i) Protein. (1mk)

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ii) Vitamin (1mk)

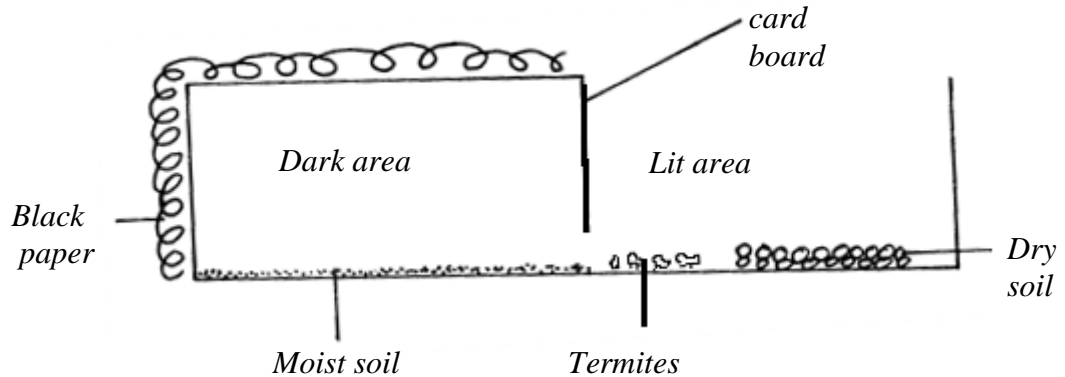
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b) Explain why blood is not normally used for transfusion after one month. (1mk)

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17. A group of Form four students set up an experiment to investigate a biological process using termites. They used a small box in which a portion was covered with black paper and had moist soil. The open part had dry soil. Termites were placed inside in open area of the box.



a) Predict what happened to the termites after 30 minutes. (1mk)

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b) What form of response is exhibited by termites? (1mk)

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c) State one biological significance of the above response to termites. (1mk)

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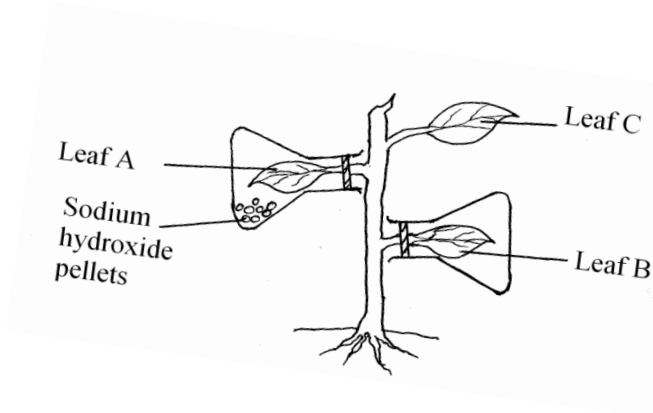
18. a) Name two fins in a bony fish which perform the following functions:-  
i) Changing direction. (1mk)

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ii) Control pitching. (1mk)

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(b) State the role of myotomes in fish. (1mk)

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19. The diagram below represents an experimental set up to investigate a certain scientific concept. The potted plant was first destarched by keeping it in dark for four days.



The set up was then placed in sunlight for five hours and leaves were tested for starch.

a) What scientific concept was being investigated? (1mk)

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b) i) Give the results likely to be obtained after starch test for A and B.  
A and B.

A ..... (1mk)

B ..... (1mk)

ii) Account for the results in leaf A in b (i) above. (1mk)

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c) Why was leaf C included in the set-up? (1mk)

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20. a) Explain the importance of transport in plants. (2mk)

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b) What is the role of root hairs in plants? (1mk)

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21. a) Identify the source of urea that is removed via the kidneys in a healthy human being.

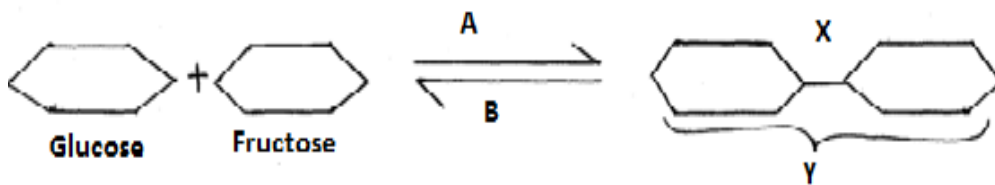
(1mk)

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b) Explain why a pregnant woman excretes less urea compared to a woman who is non-pregnant. (2mk)

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22. Study the reaction below and answer the questions that follow.



a) What biological processes are represented by A and B? (2mk)

A .....

B .....

b) Identify the product Y. (1mk)

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c) State the bond represented by X. (1mk)

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23. Explain the events of the light stage of photosynthesis. (3mk)

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24. Explain what happens in humans when the concentration of glucose in the blood rises above the normal level. (3mk)

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25. a) Outline the main features of Lamarckian theory of evolution. (2mk)

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b) In view of modern genetics, explain why Lamarck's theory is unacceptable. (1mk)

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c) Name one factor in nature that increases the process of evolution. (1mk)

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