

Name..... Index No.....  
231/1  
BIOLOGY  
(Theory)  
JULY 2018.  
**2 hours**

Date.....  
Sign.....

KENYA NATIONAL EXAMINATIONS COUNCIL

*(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***

<b>Question</b>	<b>Maximum Score</b>	<b>Candidate's Score</b>
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 kingdom to which the following organisms belong: (2mks).  
(a). Algae

(b). bacteria

2. State three precautions observed when collecting biological specimens. (3mks).

3. Explain how the following factors hinder self pollination in plants:

(i) Protogyny (1mk)

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(ii) Dioecism (1mk)

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4. Name the causative agents of the following diseases in humans. (2mks)

(a). Amoebic dysentery.

(b). Candidiasis.

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

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.....b)

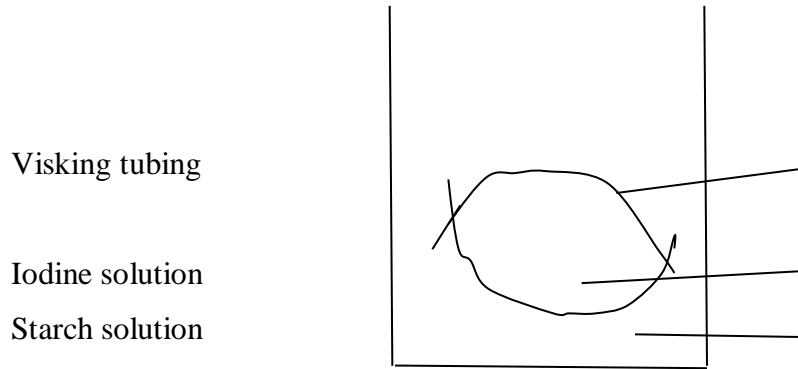
Distinguish between natural immunity and acquired immunity. (1mk)

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

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6. Study the diagram below and answer the questions that follow.



(a). Name the physiological process being investigated. (1mk).

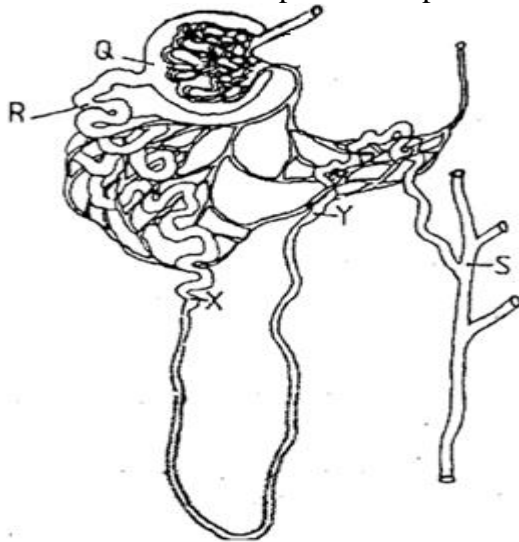
(b) State the expected results at the end of the experiment. (2mks).

(c). Explain your answer in (b) above. (2mks).

7. What happens to glucose synthesized during photosynthesis. (2mks).

8. Give two advantages of polyploidy in plants. (2mks).

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)

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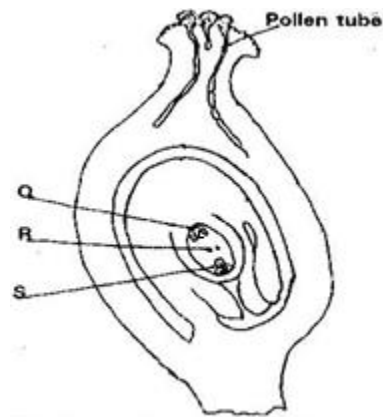
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10. State three structural differences between Crustacea and Arachnida. (3mks).

11. State three ways in which a respiratory surface is adapted to its function. (3mks).

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)

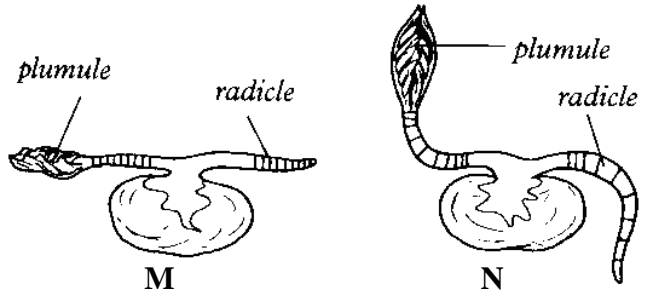
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13. (a) Where does glycolysis takes place in a cell. (1mk)/

(b). Name the compound formed during glycolysis. (1mk).

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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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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 from a donor whose blood group is A cannot be transfused into the recipient whose blood group is B. (2mk)

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17.(a). State two effects of Gibberellins on shoots of plants. (2mks)

(b). Account for loss in dry weight of cotyledons in a germinating bean seed. (1mk).

18. (a) Explain the importance of transport in plants. (1mk)

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

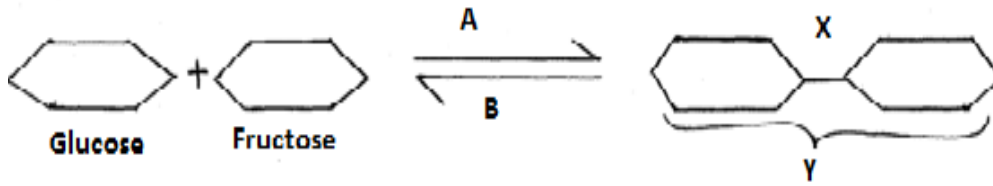
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19. Explain why a pregnant woman excretes less urea compared to a woman who is non- pregnant.

(2mk)

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20. 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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21... Explain what happens during the light stage of photosynthesis. (3mk)

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

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23. State two characteristics of aerenchyma tissue. (2mks).

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24. (a). Name the substance that accumulates in muscles when respiration occurs with insufficient oxygen. (1mk).

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(b). Give the end products of anaerobic respiration in plants. (2mks).

25. What is the importance of carrying out the following procedures when preparing temporary slides in the laboratory? (3mks).

(a). Adding water to the specimen.

(b). Staining the specimen.

(c). Using a sharp blade to make sections.

26. Name the disorder of the mammalian circulatory system that specifically affect: (2Mks).

(a). Arteries

(b). Veins.

27. The table below shows the percentage composition by volume of inhaled and exhaled air.

	Inhaled air %	Exhaled air %
Oxygen		
Carbon (IV) oxide		
Water vapour		

(a). By what percentage is carbon (IV) oxide concentration in exhaled air higher than inhaled air. (2mks).

(b). Explain the difference in the composition of the gases between inhaled and exhaled air. (3mks).