

Term 2 - 2022  
BIOLOGY  
(QUESTION PAPER I )  
FORM FOUR  
TIME: 2 HOURS

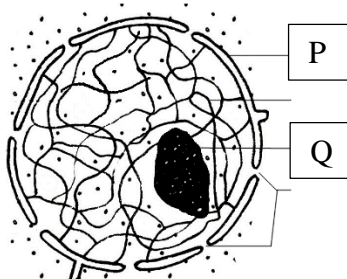
Name: ..... Adm No: .....  
School: ..... Class: .....  
Signature: ..... Date.....

**INSTRUCTIONS**

- 1. All Questions are Compulsory**
- 2. Write your Answers in the Spaces Provided**
- 3. Wrong Spelling of Technical Terms shall be Penalized**

Max Score	Student's Score
80	

1. The diagram shown below represents a nucleus



a) State the role of the organelle labelled **Q** (1mk

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b) Name a Kingdom whose members lack structure labelled **P** (1mk

.....

c) Which is the general term given to organisms whose cells have structure **P**?

.....(1mk

2. a) Name the **TWO** components of a lipid molecule (1mk

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b) State **TWO** disadvantages of using fats as respiratory substrates (2mks

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.....

3. a) Name the pigment that protects humans from the negative effect of Ultraviolet lights

.....(1mk

b) Explain how sunlight contributes to stronger bones and teeth in human beings (2mks

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4. Name the main target organ of the following hormones: (2mks

a) Aldosterone .....

b) Insulin .....

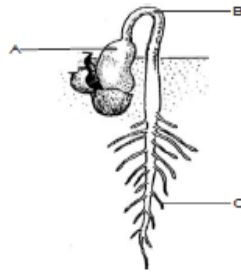
5. a) What is asexual reproduction? (1mk

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- b) Give **TWO** disadvantages of sexual reproduction (2mks

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6. The diagram shown below represents a seedling. Use it to answer questions that follow



- a) Give a reason why the plant above is a member of Class Dicotyledonae (1mk

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- b) Explain why the biomass of part labelled A will be lower compared to the one found in the seed stage of the same plant (2mks

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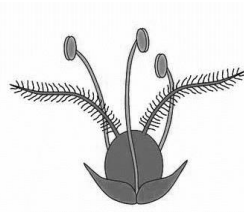
7. a) State **TWO** ways in which blood clotting is important to a human being (2mks

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- b) What are the roles of thrombokinase enzyme during blood clotting? (2mks

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8. The diagram shown below represents a flower



a) Name the agent of pollination for the flower shown above (1mk

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b) Give **TWO** reasons for your answer in a) above (2mks

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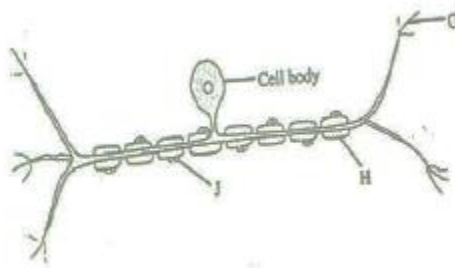
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9. State the differences between cones and rods in terms of the following (2mks

Feature	Cone	Rod
Visual acuity		
Photochemical		

10. Use the diagram of a nerve cell shown below to answer questions that follow



a) With a reason, give the identity of the nerve cell (2mks

Identity .....

Reason .....

b) Explain the significance of absence of part labelled **H** in nerve cells found in the brain.

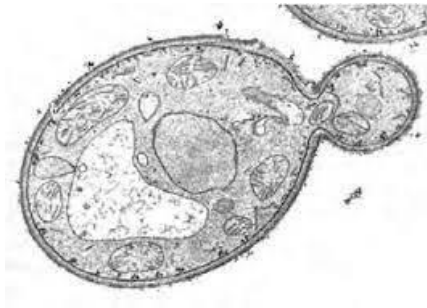
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.....(2mks

11. Give **THREE** features that make modern man to be more adaptable to the environment

.....  
.....  
.....  
.....(3mks

12. The diagram below represents a living organism



a) State **TWO** economic importance of the above organism in the food industry (2mks

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.....  
.....(2mks

b) Why does the rate of respiration reduce under the following conditions? (2mks

i) Low temperature

.....  
.....

ii) Metabolic poison

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.....

13. State **TWO** reasons why Biotechnology is important in modern science (2mks

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.....  
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14. a) Fill in the table shown below to give differences between continuous and discontinuous variation (2mks)

Continuous Variation	Discontinuous Variation

- b) Explain how variation is important in the process of evolution? (3mks)

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15. a) Define the term species (1mk)

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- b) State **TWO** contributions of Carolus Linnaeus (1708 – 1778) to taxonomy (2mks)

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16. a) In an experiment, Peter counted 9 cells along the diameter of field of view of a light microscope measuring 3.0mm. Determine the diameter of one cell in micrometers (3mks)

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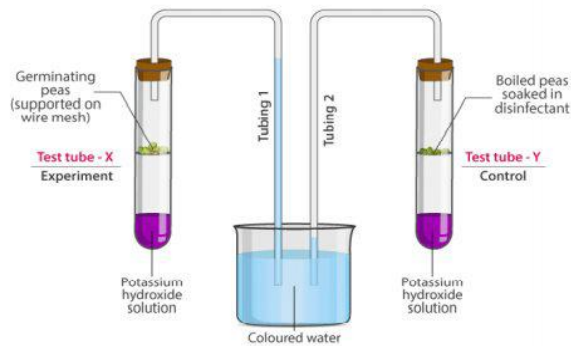
- b) Why is electron microscope safer to the eye than light microscope during use? (1mk)

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17. The following diagram represents results of an experiment carried out on two sets of germinating seeds.



a) Account for the result shown in test tube **X** (2mks)

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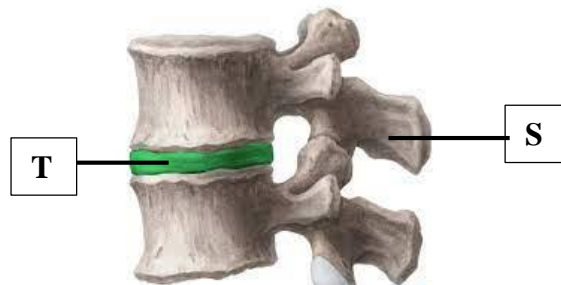
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b) What is the importance of dipping the boiled seeds in a disinfectant in test tube **Y**?

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.....(1mk

18. The diagram shown below represents a section of the vertebral column



a) Name the part labelled **S** (1mk

.....

b) State **TWO** ways in which part **T** is important to movement in human beings (2mks

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.....

19. Describe how the following cells adapt the structures where they are found to their functions

a) Companion cell

(2mks

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 .....

b) Schwann cell

(2mks

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20. A mother had a still birth and the expelled foetus showed clear signs of anaemia and jaundice

a) Give the name of this disorder

(1mk

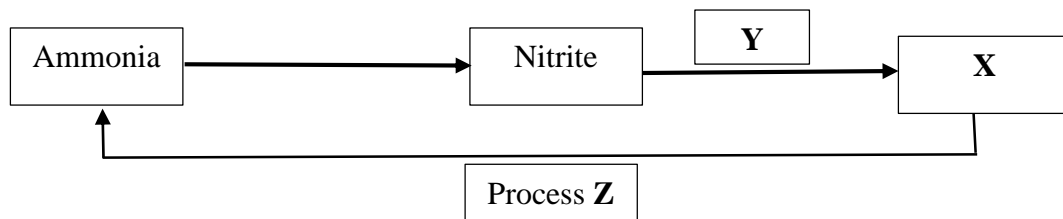
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b) Describe how the disorder arose

(3mks

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 .....  
 .....

21. The following equation represents a section of the Nitrogen Cycle



a) Name: i) Bacterium labelled **Y** .....(1mk

ii) Compound **X** .....(1mk

b) Explain how Process **Z** affect plant growth in an area?

(2mks

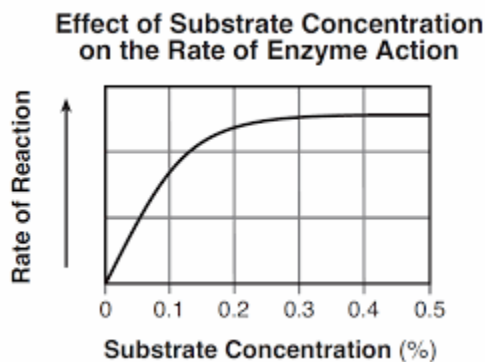
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22. Samson had a road accident resulting in serious head injuries that left him with the following conditions: Loss of balance, low body temperature; poor speech, unregulated breathing and memory loss. Name the part of the brain affected that led to the following:

- i) Low body temperature .....(1mk
- ii) Memory loss .....(1mk
- iii) Unregulated breathing .....(1mk

23. The graph shown below represents effect of substrate concentration on rate of enzymatic reaction



- a) Account for the rate of enzymatic reaction when the substrate concentration was between 0.3 to 0.5%. (2mks

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- b) Name the substrates for the following enzymes

- i) Carbonic anhydrase .....(1mk
- ii) Thrombin .....(1mk

24. A tilapia fish has a full length of 300mm but measures 200mm from the mouth tip to its anus. Determine the tail power of the fish (2mks

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