**Name:** ………………………………………………..…**Adm No**: ….…………**Class:** ………… **Candidate’s Sign**: ………...............**Date:** ………………..........................................

**OPENER EXAMS**

**TERM 3 2023**

**FORM THREE BIOLOGY**

1. Define the following terms.

a) Classification –

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………

b) Species.

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1. The diagram below represents a certain organism collected by a student at the sea shore.



a) Name the class to which the organism belong. (1 mark)

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b) Give three reasons for your answer in (a) above. (3 marks)

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1. In an investigation, a student extracted three pieces of potato cylinders using a cork borer. The cylinders were cut back to 40mm length and placed in a beaker containing a solution.

The results after 30 minutes were as shown in the table below.

|  |  |
| --- | --- |
| **Feature** | **Results** |
| Average length of the cylinder | 38mm |
| Stiffness of cylinders | Spongy |

1. Account for the results in the table above. (3 marks)

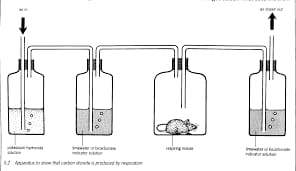
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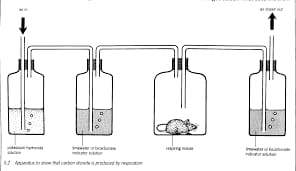
1. What would be a suitable control experiment? (1 mark)

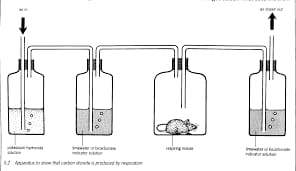
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1. The diagram below represents set-up that student used.



Air

Potassium Hydroxide

Calcium Hydroxide

Flask N

Rat

a) Name the physiological process that was being investigated. (1 mark)

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b) State the role of potassium hydroxide in flask K. (1 mark)

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1. State and explain the observation in flask N.

Observation. (1 mark)

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Explanation. (1 mark)

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5. Name the type of respiration that is most efficient. (1 mark)

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

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6a) State two differences between open and closed circulatory system. (2 marks)

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b) What is a single circulatory system? (1 mark)

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7. Name the organelles that are involved in each of the following. (3 marks)

a) Form site for ribosome attachment.

…………………………………………………………………………………………………………………

b) Formation of vesicles.

…………………………………………………………………………………………………………………

c) Carry genetic material.

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8. State two ways in which the muscles of mammalian heart are special. (2 marks) ………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

9. Name one defect of the circulatory system in human. (1 mark)

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b) State two functions of blood other than transport. (2 marks)

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10. State the economic importance of anaerobic respiration in plants. (1 mark)

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11. Name two structures of gaseouses exchange in aquatic plants. (2 marks)

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12. State two factors that affect enzymatic activities. (2 marks)

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b) Explain how one of the factors stated in (a) above affects enzymatic activities. (1 mark)

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13. Describe how population of grasshopper in a given area can be estimated. (3 marks)

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14. What is crenation? (1 mark)

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15. Name one salivary gland in human. (1 mark)

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b) State two functions of saliva. (2 marks)

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16a) Distinguish between respiration and respiratory surface. (2 marks)

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b) Two individuals were exposed in the following conditions.

S – Air rich in carbon (II) Oxide.

T- Air rich in carbon (iv) Oxide.

i) Which of the two individual was likely to suffer? (1 mark)

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ii) Give reason to your answer b(i) above. (3 marks)

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iii) How can the situation in b(i) above is corrected. (1 mark)

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c) Explain why athletes train at high altitude areas in preparation for competitions. (2 marks)

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17. State three main abiotic factors that influence plant growth and distribution in an ecosystem. (3 marks)

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b) Explain how the following adaptation enables the plants to survive in arid areas.

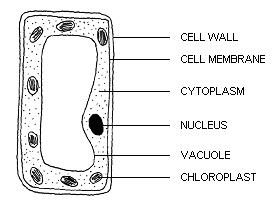
i) Thick, shinny waxy cuticle. (2 marks)

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ii) Fleshy green leaves with spines. (2 marks)

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18. A student was using a light microscope to observe a cell of a leaf. He counted 8 cells along the diameter of field of view which was 2.5mm, then he drew the diagram.



M

N

49 mm

1. Name structures labeled M and N. (2 marks)

…………………………………………………………………………………………………………………

1. Calculate the actual diameter of the cell. (1 mark)

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ii) Calculate the magnification of the cell drawn above. (2 marks)

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