Name: …………………………………………Adm no ……..…........... Class.................

231
BIOLOGY
FORM TWO
TIME: 2HRS

INSTRUCTIONS TO CANDIDATES:

- *Answer **ALL** the questions*
- *Answers should be written in the spaces provided*

1. The equation bellows shows a chemical reaction that takes place in green plants under certain conditions

   Carbon (IV) Oxide   +   Water $\longrightarrow$ Glucose   +   X
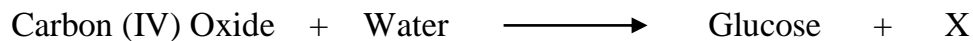
   a)   Name the;   (2mks)

   i) Process represented by the equation……………………………………………………………

   ii)   Substance represent by X…………………………………..…………………..…………

   b) Other than the reactants, state two conditions necessary for this reaction to occur.   (2mks)

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   c) Name **three** types of cells in which the process occurs   (3mks)

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2. Name **one** example of the specialized cells in plants and one example in animals.

   (i) Plants……………………………………………………………………………… (1mk)

   (ii) Animals………………………………………………………………………….(1mk)

3. Identify the following apparatus and state its functions.
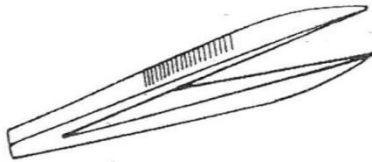
i) Name……………………………………………………..(1mk)

ii) Function   (1mk)

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4. A student measured the length of a mitochondrion on a photomicrograph whose magnification was X 40000 and found it to be 1mm. Calculate the actual size of the mitochondrion.   (3mks)

5. State the type of solution that makes the plant cell.   (2mks)
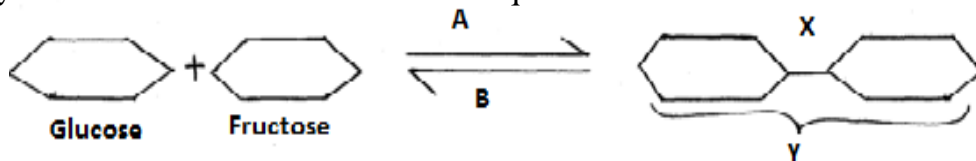
i) Flaccid…………......…………………………………………....…………………………

ii) Turgid……………………………………………………………………………………

6. Name the carbohydrate stored in:

i) Cell wall.   ………………………………………………………………………. (1mk)

ii) Mammalian liver.   ……………………………………………………………… (1mk)

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

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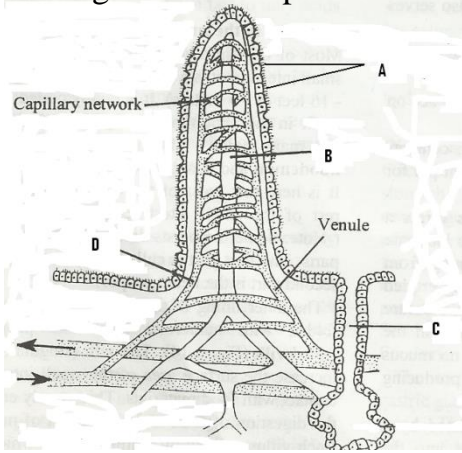
A ……………………………………………………………………………………..

B ……………………………………………………………………………………..

b) Identify the product Y………………………………………………………… (1mk)

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

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8. The figure below represents a structure obtained from the ileum of a mammal.

Capillary network

A

B

Venule

D

C

a) Give the identity of the structure. (1 mk)

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b) What is the importance of the structure named in (a) above? (1 mk)

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c) Name the parts labeled A, B and D. (3mks)

A……………………………………………………………….

B……………………………………………………………….

D……………………………………………………………….

9 (i) Name the juice secreted by the part labeled C. (1mk)

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 (ii) List **two** enzymes present in the juice named in d (i) above. (2mks)

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10. What are the structural differences between veins and arteries? (3mks)

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11. State three differences between aerobic and anaerobic respiration. (3mks)

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12. (i) Name the type of immunity developed by the body when one is vaccinated against a certain disease (1mk)

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ii) Name the blood groups of a person whose blood plasma has antibody b (2mks)

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iii) State the role of thrombin in blood clotting (1mk)

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13. a) Define respiration (1mk)

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b) Study the equation below. Identify the process represented below (1mk)

$$C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + CO_2 + 210KJ$$

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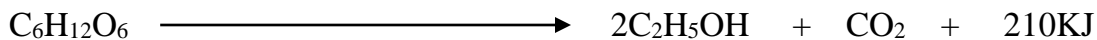
c) Name an organism this process may occur……………………………………………………….(1mk)

d) Identify the food substrate of whose respiratory quotient (RQ) was found to be 0.7 (1mk)

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14. State the functions of the following hormones

a) Antidiuretic hormone (2mks)

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b) Glucagon   (2mks)

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15. Outline three ways in which the gills of Tilapia fish are modified to perform their function (3 mks)

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16. a) Calculate   the respiration quotient (RQ) from the equation below:-   (3 mks)

$$2C_{51}H_{98}O6 + 145O_2 \longrightarrow 102 CO_2 + 98H_2O + Energy$$

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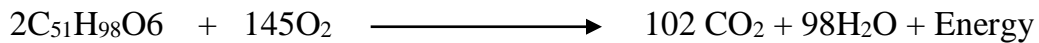
   b) Identify the substrate being respired in the above equation   (1 mk)

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17.   a) Explain what is meant by the term oxygen debt in human beings   (2 mark)

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   b) What are the end products of anaerobic respiration in animals   (2 mrks)

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18. i) Where in a cell does glycolysis take place? (1mrk)

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(ii) Name the product of the above process (1mrk)

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19. The equation below summarizes a metabolic process in plants.

Glucose $\longrightarrow$ Ethanol + carbon (IV) oxide + Energy
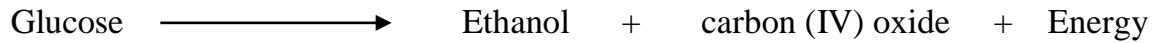
State two industrial applications of the above equation. (2mks)

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20. Explain why a rat, though small eats more frequently than an elephant (2mks)

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21. Give the conditions necessary for the second phase of aerobic respiration (3mks)

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22. Name any three respiratory diseases (3mks)

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23. Briefly explain the process of inhalation in man. (8mks)

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