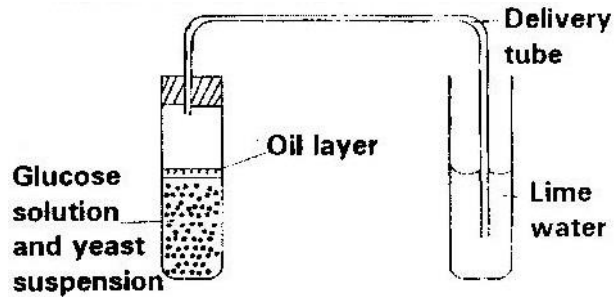


RESPIRATION

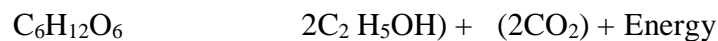
PAST KCSE QUESTIONS ON THE TOPIC

1. The diagram below shows a set up that was used to demonstrate fermentation.



Glucose solution was boiled and oil added on top of it. The glucose solution was then allowed to cool before adding the yeast suspension.

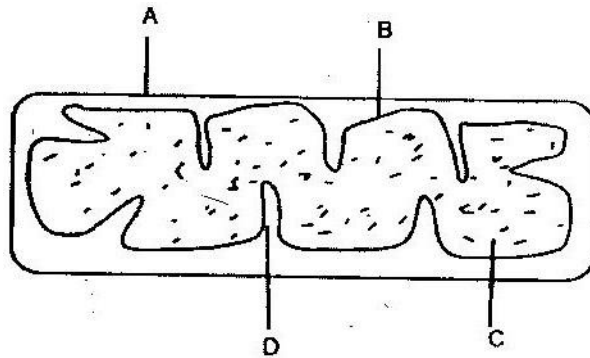
- a) Why was the glucose solution boiled before adding the yeast suspension? (1mk)
- b) What was the importance of cooling the glucose solution before adding the yeast suspension? (1mk)
- c) What was the use of the oil in the experiment? (1mk)
- d) What observation would be made in test tube B at the end of the experiment (1mk)
- e) Suggest a control for this experiment (1mk)
2. Give two reasons why accumulation of lactic acid during vigorous exercise lead to an increase in heart beat. (2mks)
3. A process that occurs in plants is represented by the equation below.



Glucose Ethanol Carbon Dioxide

- a) Name the process (1mk)
- b) State the economic importance of process name in (a) above. (1mk)
4. Other than carbon dioxide, name the other products of anaerobic respiration in plants. (2mks)
5. Name the substance which accumulates in muscles when respiration occurs with insufficient oxygen. (1mk)
6. a) In what form is energy stored in muscles? (1mk)
- b) State the economic importance of anaerobic respiration in plants. (2mks)
7. State four ways in which respiratory surfaces are suited to their function. (4mks)
8. a) A dog weighing 15.2kg requires 216kJ while a mouse weighing 50g requires 2736KJ per day. Explain. (2mks)
- b) What is the end product of respiration in animals when there is insufficient oxygen supply? (1mk)
9. a) Name the products of anaerobic respiration in:
- i) Plants (1mk)
- ii) Animals (1mk)
- b) What is oxygen debt? (1mk)
10. $5C_{51}H_{98}O_6 + 145O_2 \rightarrow 1 O_2CO_2 + 98 H_2O + \text{energy}$
- The above equation shows an oxidation reaction of food substances.

- a) What do you understand by the term respiratory quotient? (1mk)
- b) Determine respiratory quotient of the oxidation of food substance. (2mks)
- c) Identify the food substances. (1mk)
- 11 Write differences between aerobic respiration and photosynthesis. (4mks)
12. Below is a diagram of an organelle that is involved in aerobic respiration.



- a) Name the organelle (1mk)
- b) Name the parts labeled A, B, and C. (3mks)
- c) What is the purpose of the folding labeled D? (1mk)
- d) Give the chemical compound which is formed in the organelle and forms the immediate source of energy.

NOVEMBER-DECEMBER HOLIDAY ASSIGNMENT

WEEK 7-8

TRANSPORT IN ANIMALS

PAST KCSE QUESTIONS ON THE TOPIC

1. People can die when they inhale gases from burning charcoal in poorly ventilated rooms. What compound is formed in the human body that leads to such deaths?
(1mk)

2. Explain why blood from a donor whose blood group is A cannot be transfused into a recipient whose blood group is B. (2mks)

3. State one difference between closed and open circulatory systems. (1mk)

4. a) Give an example of a phylum where all members have
 - i) Open circulatory system
 - ii) Closed circulatory system (2mks)

- b) What are the advantages of the closed circulatory system over the open circulatory system? (5mks)

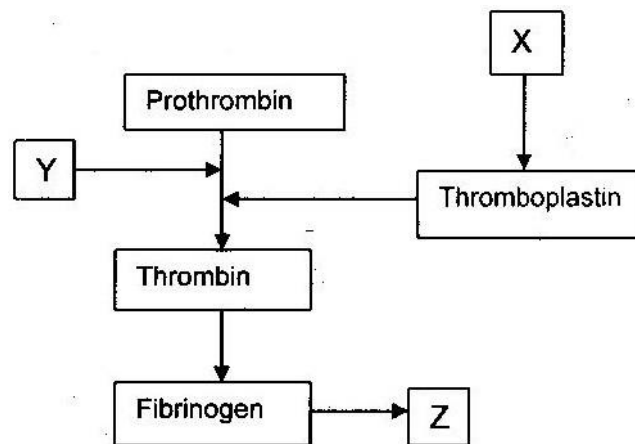
5. Explain two ways in which mammalian erythrocytes (red blood cells) are adapted to their function (2mks)

6. a) i) Name the blood vessels that link arterioles with venules. (1mk)
- ii) Explain four ways in which the vessels you named in (a) above are suited to carrying out their functions. (4mks)
- b) State two ways in which the composition of blood in the pulmonary arterioles differ from that in the pulmonary venules. (2mks)

7. Why would carboxyhaemoglobin lead to death? (2mks)

8. Explain how the red blood cells of mammals are adapted for efficient transport of oxygen. (2mks)

9. The chart below is a summary of the blood clotting mechanism in man.



Name

- i) The blood cells represented by X
- ii) Metal ion represented by Y
- iii) The end product of the mechanism represented Z

10. a) How can excess bleeding result in death? (2mks)
- b) Name the process by which the human body naturally stops bleeding. (1mk)
- c) How can low blood volume be brought back to normal? (2mks)
11. a) Name one defect of the circulatory system in humans. (1mk)
- b) State three functions of blood other than transport. (3mks)
12. a) What prevents blood in veins from flowing backwards? (1mk)
- b) State two ways in which the red blood cells are adapted to their function. (2mks)
13. State one way by which HIV/AIDS is transmitted from mother to child. (1mk)
14. Explain how the various components of blood are adapted for their function. (20mks)
15. Distinguish between blood, plasma, serum, tissue fluid and lymph. (10mks)
16. a) A patient whose blood group is A died shortly after receiving blood from a person of blood group B. Explain the possible cause of death of the patient. (2mks)
- b) A person of blood group AB requires a transfusion.
- i) Name the blood groups of the possible donors (2mks)
- ii) Give reasons for your answer in (i) above. (2mks)
17. Differentiate between active immunity and passive immunity. (2mks)

18. Explain why a person can catch a cold several times in a year but only catches measles once in his or her lifetime. (2mks)
19. Most carbon dioxide is transported from tissues to the lungs within the red blood cells and not in the blood plasma. Give two advantages of this mode of transport. (2mks)
20. What is the importance of tissue fluid? (2mks)

NOVEMBER-DECEMBER ASSIGNMENT

WEEK 4-6

GASEOUS EXCHANGE

PAST KCSE QUESTIONS ON THE TOPIC

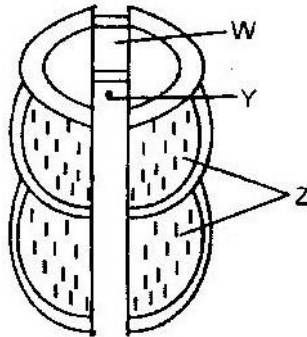
1. Discuss how gaseous exchange occurs in
 - a) Terrestrial Insects (9mks)
 - b) Bony fish (11mks)
2. a) Explain how mammalian lungs are adapted for gaseous exchange. (8mks)
 - b) Describe how carbon dioxide is produced by
 - i) Respiring muscle cells reaches the alveolar cavities in mammalian lungs.
 - ii) Respiring mesophyll cells of flowering plants reaches the atmosphere. (12 mks)
3. a) Describe the path taken by carbon dioxide released from the tissues of an insect to the atmosphere.
 - b) Name two structures used for gaseous exchange in plants. (2mks)
4. Why are gills in fish highly vascularized? (1mk)
5. Describe the
 - a) Process of inhalation in mammals. (10 mks)
 - b) Mechanism of opening and closing of stomata (10 mks)

6. Name three sites where gaseous exchange takes place in terrestrial plants.

(3mks)

7. How is aerenchyma tissue adapted to its function? (2mks)

8. The diagram below represents a part of the rib cage.



a) Name parts labeled W, Y and Z.

b) How does the part labeled Z facilitates breathing in? (1mk)

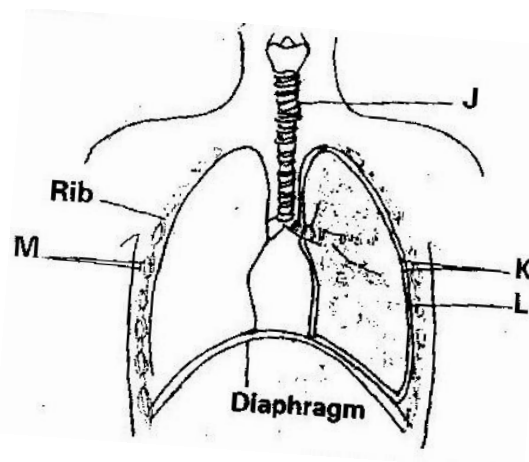
9. State two ways in which floating leaves of aquatic plants are adapted to gaseous exchange. (2mks)

10. a) Name two structures for gaseous exchange in aquatic plants.

(2mks)

b) What is the effect of contraction of the diaphragm muscles during breathing in mammals? (3mks)

11. The diagram below represents some gaseous exchange structures in humans.



- a) Name the structure labeled K, L and M (3mks)
- b) How is the structure labeled J suited to its functions? (3mks)
- c) Name the process by which inhaled air moves from the structure labeled L into blood capillaries. (1mk)
- d) Give the scientific name of the organism that causes tuberculosis in humans. (1mk)
- 12 State three factors that make alveolus adapted to its function. (3mks)
13. Explain how the alveoli are ventilated.
14. Explain why water logging of the soil may lead to death in plants. (2mks)
15. Write three advantages of breathing through nose than through mouth. (3mks)
16. State and explain ways the leaves are adapted for gaseous exchange (4mks)
17. Name three gaseous constituents involved in gaseous exchange in plants. (3mks)
18. Name three sites of gaseous exchange in frogs. (3mks)
19. Name the main site of gaseous exchange in
- a) Mammals
- b) Fish
- c) Leaves
- d) Amoeba (4mks)

20. Name the physiological process by which gas exchange takes place at the respiratory surface in animals and plants (1mk)

