

RESPIRATION

KCSE QUICK REVISION

*Compilation of Possible Questions in Biology Likely to be
Examined in KCSE.*

*A Special Analysis of Prediction Questions that may be Tested in KCSE from this
Topic in Form 2.*

BIOLOGY

SERIES 1

For Marking Schemes

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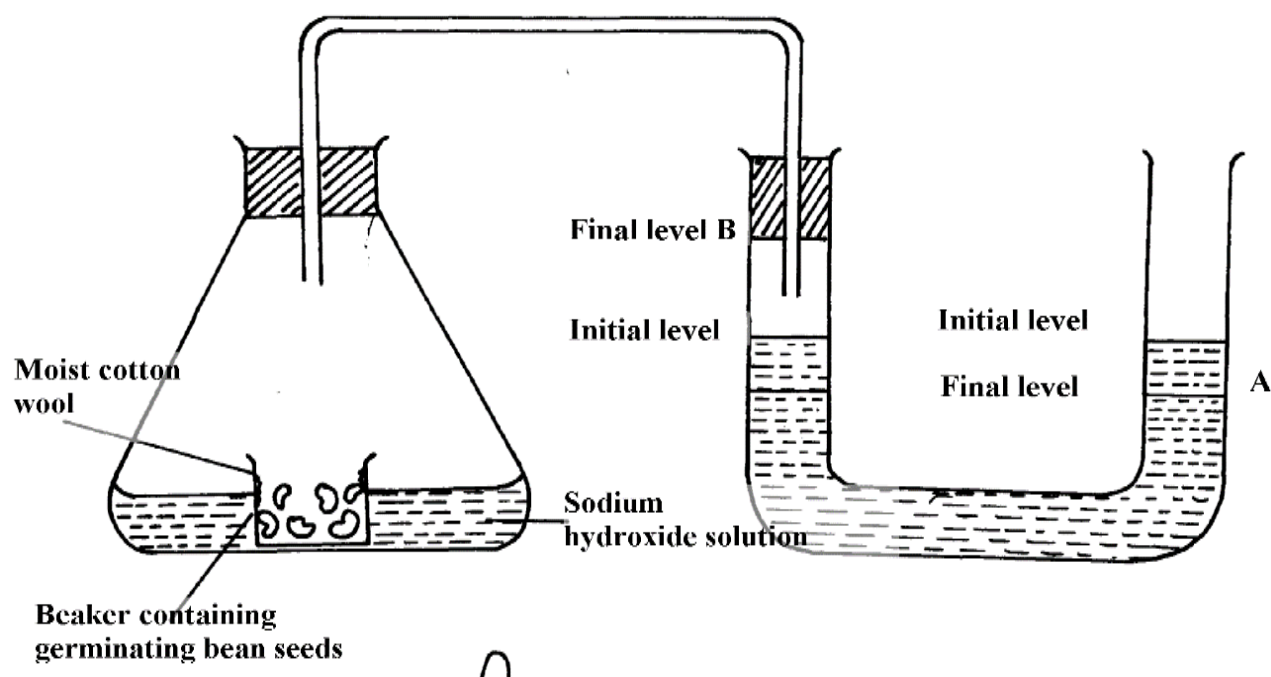
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RESPIRATION

1. (a) Distinguish between gaseous exchange and respiration
(b) Name the products of anaerobic respiration in plants
2. (a) State **two** phases of aerobic respiration
(b) With a reason, state the phase that yields more energy
3. A process that occurs in plants is represented by the equation below:-
$$\text{C}_6\text{H}_{12}\text{O}_6 \quad \quad \quad 2\text{C}_2\text{H}_5\text{OH} + 2\text{CO}_2 + \text{Energy}$$

(Glucose) (Ethanol) (Carbon (IV) Oxide)

 - (a) Name the process
 - (b) State the economic importance of the process named in (a) above
4. Give a reason why it is difficult to calculate respiratory quotient (RQ) in plants
5. a) Explain what is meant by the term oxygen debt in human beings
b) What are the end products of anaerobic respiration in animals
6. The apparatus below was set up by a student to find out the changes in gases during germination



- a) After 48 hours the level of _____ in the U-tube at **A** and **B** was as shown. Explain the observation
- b) Calculate the respiration quotient (**RQ**) from the equation below:-
$$2\text{C}_{51}\text{H}_{98}\text{O}_6 + 145\text{O}_2 \rightarrow 102\text{CO}_2 + 98\text{H}_2\text{O} + \text{Energy}$$
- c) Identify the substrate being respired in the above equation
7. One molecule of lipid gives more energy than one molecule of glucose when respired aerobically but it is NOT always used as a respiratory substrate
- a) Give **two** reasons for this
- b) Name **two** disaccharides which are reducing sugar
8. (a) (i) Where in a cell does glycolysis take place?
(ii) Name the product of the above process
- (b) Briefly explain Kreb's cycle in a plant cell during anaerobic respiration
9. How is the mammalian skin adapted to its protective function?
10. The oxidation state of a certain food is represented below by a chemical eqn:-
$$2\text{C}_3\text{H}_2\text{O}_2\text{N} + 6\text{O}_2 \rightarrow (\text{NH})_2\text{CO}_2 + 5\text{CO}_2 + 5\text{H}_2\text{O}$$
- a) Calculate the respiratory quotients (**RQ**) of the food substrate
- b) Identify the food substrate
11. Whooping cough is a disease of the respiratory system name the causative agents and give **two** symptoms
12. How does the sunkness of stomata help in minimizing the rate of transpiration in plants
13. State **two** roles of adrenaline in man
14. Explain why a rat, though small eats more frequently than an elephant
15. Active yeast cells were added to dilute sugar solution in a container. The mixture was kept in a warm room. After a few hours bubbles of a gas were observed escaping from the mixture
- (a) Write an equation to represent the chemical reaction above
- (b) State **two** economic importance of this type of chemical reaction in industry?

16. (a) Give **two** reasons why fats are not the main respiratory substrates in the body of a mammal and yet they give a lot of energy when oxidized.

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

Glucose Ethanol + carbon (IV) oxide + Energy

State **two** industrial applications of the above equation.

18. (a) Differentiate between respiration and respiratory surface.

(b) Why is an effective respiratory system often associated with a circulatory system.

19. State **two** reasons why lipids are rarely used as a respiratory substrate compound to carbohydrates.

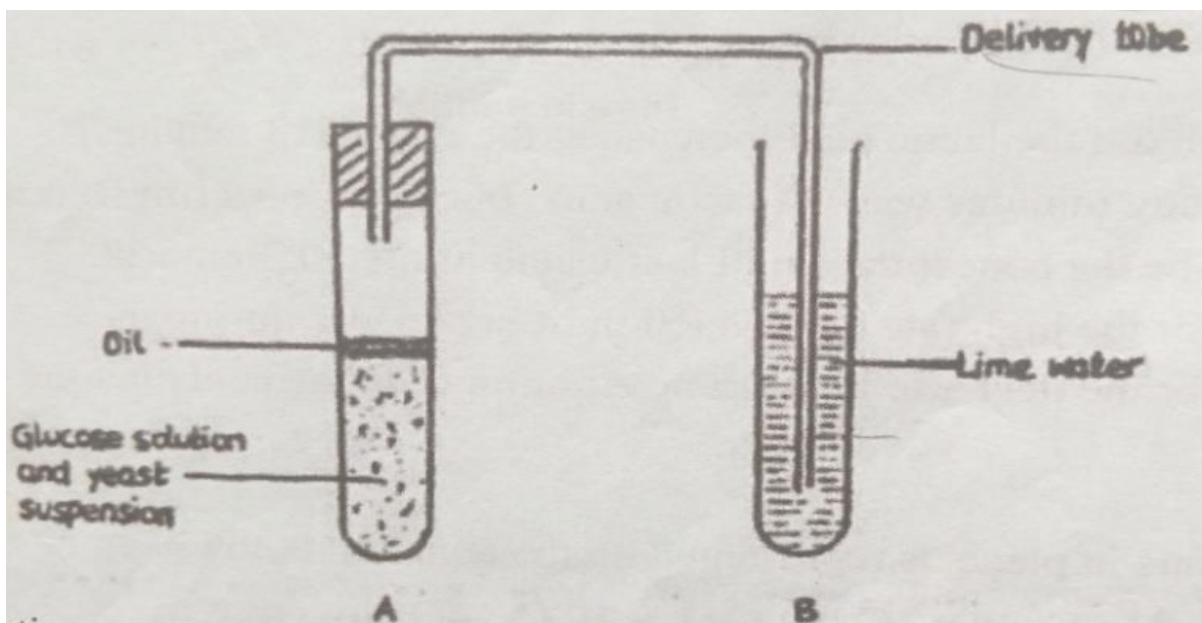
20. The equation below shows respiration for a certain food substrate. Study it and answer questions that follow:



(a) Calculate the respiratory Quotient, RQ

(b) Suggest with reasons the possible food substrate

21. The apparatus below was used to investigate anaerobic respiration:-



- (a)** How would you remove dissolved oxygen from the glucose before the experiment commencing?
- (b)** State what happens to the lime water as the experiment proceeds to the end
- (c)** Describe the reactions in the experiment
- (d)** Explain what would happen if the temperature of glucose solution and yeast was raised beyond 45°C?

For Marking Schemes/Answers

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