

7. Respiration.

1. (a) Gaseous exchange is the movement of gases across a respiratory surface; while
respiration is the biochemical breakdown of food molecules to produce energy (and carbon IV oxide);
(b) Ethanol/Alcohol;
Carbon (IV) oxide; and energy; (any two)
2. (a) Glycolysis;
Krebs cycle;
(b) Krebs cycle; because oxygen is used to oxidize acid to water, Carbon (IV) Oxide and energy;
3. a) anaerobic respiration/fermentation;
b) -baking of bread
-brewing industry
4. Carbon (IV) oxide produced in respiration is utilized in photosynthesis; oxygen produced in photosynthesis is used in respiration;
5. a) Amount of oxygen required to get rid of lactic acid that accumulates in the body tissues when
oxygen available is lower than the demand
b) Energy/A.T.P/ Lactic acid
6. (a) Germinating seeds respired using oxygen in the conical flask and produced CO₂, which was absorbed by the sodium hydroxide solution. A partial vacuum was created in the conical flask. The atmospheric pressure being higher pushes the water down to A and upto B.
(b) $RQ = \frac{\text{Vol of CO}_2 \text{ produced}}{\text{Vol. of O}_2 \text{ used}} = \frac{102}{145} = 0.70$;
(c) Lipids;
7. (a)
- Complete oxidation of lipids require a lot of oxygen;
- Lipids are insoluble in water hence difficult to transport in the body
- Complete oxidation of lipids take a longer time
(b) Maltose
Lactose

8. a) i) Cytoplasm
 ii) Pyruvic acid
 b) Pyruvic acid is broken down; into ethanol and CO₂
9. a) $RQ = \frac{\text{CO}_2 \text{ produced}}{\text{O}_2 \text{ consumed}}$

$$= \frac{5}{6} ; = 0.83;$$
 b) Protein;
10. Bacteria, bacteria/ Symptoms
 - Prolonged coughing and vomiting
 - Convulsions and coma
 - Conjunctival haemorrhage
 - Severe bronchopneumonia
 Causative agents
 Symptoms
11. - Lowers saturation deficit by trapping H₂O moisture;
 - Protects direct sunlight to the stomatal pore;
12. They form depressions such that when wind blows it does not carry away water molecules.
13. - Increase rate of respiration
 - Speeds up the heart beat rate
14. A rat has a large surface area to volume ratio thus loses a lot of energy on form of heat therefore eats a lot to replace the lost energy;
15. a) Glucose $\longrightarrow$ water + carbon(iv) oxide + energy/210kj
 Or

$$C_6H_{12}O_6 \longrightarrow H_2O + CO_2 + \text{ATP (energy) (mark as a whole) 1mk}$$
16. Insoluble hence not easily transported to respiratory sites;
 - They require more oxygen to be oxidized;
17. - Making of beer/Brewing/Ethanol/alcohol;
 - Baking industry/Raising of the dough:
18. (a) Respiration – Chemical breakdown of food to release energy.

Respiratory surface – Surface across which respiratory gases exchange.

(b) Circulatory system transports the respiratory gases to and from tissues;
hence maintains

steep concentration gradient around the respiratory surface;

19. - Not every soluble/not readily soluble therefore not easily transported to the site of respiration;

- A lot of oxygen is required to oxidize one gram of fat/liquid than one gram of glucose;

20. a) $RQ = \frac{\text{Volume of CO}_2 \text{ given out}}{\text{Volume of O}_2 \text{ used}} = \frac{102}{145} = 0.70;$

b) Fats/ oil/ lipid;

Reason: RQ for lipids/ fats/ oils is always less than 0.8; more oxygen is used than

carbon IV produced;

21. (a) Boiling

(b) becomes milky/cloudy /precipitate.

(c) Yeast produces enzyme amylase which catalyze breakdown of glucose anerosiccally into

energy (heat)

CO₂ and Ethanol

CO₂ makes lime water to become cloudy

(d) High temperature donators enzymes, reduces/stops respiration/stops the reaction.