7. Gaseous exchange in (a) plants (b animals

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) Glycosis;

Krebs cycle;
(b) Krebs cycle; became 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 CO_2, 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 CO_2

9. a) RQ = $\frac{CO_2 \text{ produced}}{O_2 \text{ consumed}}$

$= \frac{5}{6}$; = 0.83;

b) Protein;

10. Bacteria, bacteria/ Symptoms
- Prolonged coughing and vomiting
- Convulsions and coma
- Conjuctival haemorrhage
- Severe bronchopneumonia

Causative agents

Symptoms

11. - Lowers saturation deficit by trapping H_2O 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 ——————→water + carbon(iv) oxide + energy/210kj

Or

$C_6H_{12}O_6$ ——————→ $H_2O + CO_2$ + 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/cloody /precipitate.
(c) Yeast produces enzyme amylase which catalyze breakdown of glucose anerosiccally into
energy (heat)
CO_2 and Ethanol
CO_2 makes lime water to become cloudy

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