Class – X

Subject – Biology (Respiration) MM: – 30

Objective Type Questions **1 X 10 = 10**

Q1. *To prevent the entry of food into the trachea, the opening is guarded by:*
(a) epiglottis (b) glottis (c) hard palate (d) soft palate

Q2. *Glucose gets converted into pyruvate in:*
(a) mitochondria (b) muscle cells (c) cytoplasm (d) yeast

Q3. *One molecule of glucose on complete oxidation yields:*
(a) 38 ATP (b) 40 ATP (c) 83 ATP (d) 35 ATP

Q4. *Which of the following have same functions?*
(a) Stomata and Veins (b) Stomata and Lenticels
(c) Lenticels and Parenchyma (d) Hydathodes and Sieve tubes

Q5. *Which of the following correctly describes the state of the rib cage and the shape of the diaphragm at Q?*

Rib cage	Diaphragm
(a) Downward	Flattened
(b) Downward	Dome-shaped
(c) Upward	Flattened
(d) Upward	Dome-shaped

Q6. The correct sequence of anaerobic reactions in yeas is

(a) Glucose $\xrightarrow{\text{cytoplasm}}$ Pyruvate $\xrightarrow{\text{mitochondria}}$ Ethanol + Carbondioxide

(b) Glucose $\xrightarrow{\text{cytoplasm}}$ Pyruvate $\xrightarrow{\text{cytoplasm}}$ Lactic acid

(c) Glucose $\xrightarrow{\text{cytoplasm}}$ Pyruvate $\xrightarrow{\text{mitochondria}}$ Lactic acid

(d) Glucose $\xrightarrow{\text{cytoplasm}}$ Pyruvate $\xrightarrow{\text{cytoplasm}}$ Ethanol + Carbondioxide

Q7. Which is the correct sequence of air passage during inhalation?

(a) Nostrils → Larynx → Pharynx → Trachea → Lungs
(b) Nasal passage → Trachea → Pharynx → Larynx → Alveoli
(c) Larynx → Nostrils → Pharynx → Lungs
(d) Nostrils → Pharynx → Larynx → Trachea → Alveoli

Q8. **Assertion**: Fermentation is the incomplete oxidation of glucose into lactic acid or ethanol.
Reason: Fermentation takes place under anaerobic conditions in prokaryotes only.

Q9. **Assertion**: During strenuous exercise, lactic acid is produced from pyruvic acid in skeletal cells, as a result of anaerobic respiration.
Reason: The lactic acid is excreted out through digestive and urinary tract.

Q10. **Assertion**: Glycolysis is the first step of respiration in which glucose completely breaks into CO_2 and H_2O.
Reason: In glycolysis process, net gain of ATP is twenty four molecules.

Section – B (2 Marks Each)

Q11. Name the intermediate and the end products of glucose breakdown in aerobic respiration.

Q12. What happens to the rate of breathing during vigorous exercise and why?

Section – C (3 Marks Each)

Q13. What are the differences between aerobic and anaerobic respiration? Name some organisms that use the anaerobic mode of respiration

Q14. What is the site of exchange of gases ? Explain how this exchange takes place .

Section – D (5 Marks Each)

Q15. Draw a neat and labelled diagram of human respiratory system. Explain in brief how lungs are designed in human beings to maximise the area for exchange of gases?

CASE BASED STUDY

Q16. Read the following the paragraph and answer the given questions…
Respiration is a metabolic process that occurs in all organisms. It is a biochemical process that occurs within the cells of organisms. Like other living organisms, plants also exchange gases with their environment. However, plants do not possess any transport system for the gases. Different parts of plants exchange gases independently. The gases move entirely by diffusion. Different parts of the plant respire at different rates. Energy liberated during oxidative breakdown of respiratory substrate is partly stored in ATP. The rest is dissipated as heat.

i. Name the two ways in which glucose is oxidized to provide energy in various organisms.
ii. What advantages over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration?
iii. What are the different ways in which glucose is oxidized to provide energy in various organisms?
iv. All plants give out oxygen during day and carbon dioxide during the night." Do you agree with this statement? Give reason
v. If a plant is releasing carbon dioxide and taking in oxygen during the day, does it mean that there is no photosynthesis occurring? Justify your answer.