Chapter- 14

RESPIRATION IN PLANTS

VERY SHORT ANSWER QUESTIONS (1 mark)

01. Where are ETS co-enzymes located in mitochondria?
02. What are the alternative names for the TCA cycle?
03. Give the role of ATPase
04. Why is no distinction made between ATP and GTP in calculating energy yield in cell respiration?
05. Which is the link reaction (gateway step) between glycolysis and citric acid cycle?
06. Why breathing is not considered as respiration?
07. Why anaerobic respiration is sometimes termed as fermentation and fermentation as anaerobic respiration?
08. What is the use of calculating RQ?
09. What is the fate of pyruvic acid when O_2 is absent?
10. Where O_2 is utilized during aerobic respiration?

SHORT ANSWER TYPE QUESTIONS (2 marks)

11. Name the entrant and receptor molecules in the TCA cycle. How many high energy phosphates this cycle yields?
12. What is substrate-level phosphorylation?
13. Which enzymes of the citric acid cycle occur in the inner mitochondrial membrane?
14. What are redox reactions?
15. How is the proton gradient established?
16. Give resemblances between cellular respiration and burning.
17. For what purpose is the energy from electron transfers used?

SHORT ANSWER TYPE QUESTIONS (3 marks)

18. Define (a) Respiration (b) Respiratory substrate (c) RQ (d) Anaerobic respiration (d) Fermentation
19. What is the shuttle system? Give its role.
20. Write the significance of the citric acid cycle (or TCA cycle).

21. Explain ETS.
22. What are the assumptions made during the calculation of the net gain of ATP?
23. Discuss 'the respiratory pathway is an amphibolic pathway'.
24. What is the significance of the step-wise release of energy in respiration?

LONG ANSWER TYPE QUESTIONS (5 marks)

25. Explain the major steps of glycolysis. Where does this process occur in a cell?
26. Explain the major steps of the Krebs cycle. Where does this process occur in a cell?
27. Describe the chemiosmotic production of ATP..

HOTS/MODEL QUESTIONS:

01. Differentiate between glycolysis and citric acid cycle.
02. Compare floating respiration with protoplasmic respiration.
03. Why less energy is produced during anaerobic respiration?
04. What is the importance of F_0F_1 particles in ATP production during aerobic respiration?
05. Name the inhibitor of oxidative phosphorylation.
06. Name the unit of oxidative phosphorylation.
07. Where is cytochrome-c located? What is its function?
08. Where is RQ slightly more than unity?
09. What would be the RQ value of yeast if it were to respire glucose anaerobically?
10. Name the terminal electron acceptor in aerobic respiration.
11. Enumerate a tabular representation of a respiratory balance sheet.
12. What are the products formed by the splitting of fructose-1, 6-bisphosphate?
13. Respiration requires O_2. How did the first cells on the earth manage to survive in an atmosphere that lacked O_2?
14. Who discovered ATP? Who is the father of the ATP cycle?
15. Name the energy carriers produced by the TCA cycle in plants and animals. Who suggested the sign for high energy bonds.
16. What is meant by Respiratory Quotient (RQ)? When will the value of RQ be 1 and when less than 1?