CLASS XI BIO CH - 12

Set 2 – Respiration in Plants (Factual / Knowledge-Based)

1. The end product of glycolysis is —A) Glucose B) Pyruvic acid C) Acetyl CoA D) Citric acid
 2. The conversion of pyruvate to acetyl CoA is called — A) Oxidative decarboxylation B) Phosphorylation C) Deamination D) Transamination
 3. The oxidative decarboxylation of pyruvate occurs in — A) Cytoplasm B) Mitochondrial matrix C) Chloroplast D) Endoplasmic reticulum
4. The enzyme complex responsible for conversion of pyruvate to acetyl-CoA is — A) Pyruvate dehydrogenase complex B) Hexokinase C) ATP synthase D) NADH reductase
5. The link between glycolysis and Krebs cycle is —A) Pyruvate B) Acetyl CoA C) NADH D) Oxaloacetate
6. The Krebs cycle occurs in —A) Cytoplasm B) Mitochondrial matrix C) Nucleus D) Inner membrane
7. The first stable compound of Krebs cycle is — A) Oxaloacetate B) Citrate C) Malate D) Fumarate
8. Krebs cycle was discovered by — A) A. Krebs B) Meyerhof C) Hill D) Blackman
9. Krebs cycle is also known as —A) EMP pathway B) TCA cycle C) HMP pathway D) Calvin cycle
 10. The TCA cycle starts with the condensation of — A) Acetyl CoA and Pyruvate B) Acetyl CoA and Oxaloacetate C) Pyruvate and CO₂ D) Malate and NADH
11. During one turn of the Krebs cycle, how many CO ₂ molecules are released? A) 1 B) 2 C) 3 D) 4
12. During one turn of Krebs cycle, how many NADH molecules are formed? A) 1 B) 2 C) 3 D) 4
13. During one turn of Krebs cycle, how many FADH₂ molecules are formed? A) 1 B) 2 C) 3 D) 4

 14. The enzyme succinate dehydrogenase is located in — A) Mitochondrial matrix B) Inner mitochondrial membrane C) Cytoplasm D) Outer membrane
15. The number of ATP molecules produced directly in one turn of Krebs cycle is — A) 1 B) 2 C) 3 D) 4
16. The site of oxidative phosphorylation is —A) Cytoplasm B) Inner mitochondrial membrane C) Matrix D) Nucleus
 17. The electron transport system (ETS) is a series of — A) Enzymes and cytochromes B) Coenzymes and pigments C) DNA and RNA D) Enzymes and ATP
18. The first electron acceptor in ETS is — A) NAD ⁺ B) FMN C) Coenzyme Q D) Cytochrome b
19. The final electron acceptor in ETS is —A) Oxygen B) Cytochrome oxidase C) Water D) Hydrogen
20. The site of ATP formation during ETS is —A) Inner mitochondrial membrane B) Outer membrane C) Cytoplasm D) Matrix
21. The chemiosmotic theory of ATP formation was proposed by — A) Peter Mitchell B) Krebs C) Blackman D) Hill
22. The ATP synthase complex consists of — A) F_0 and F_1 particles B) Cytochrome oxidase C) NADH dehydrogenase D) Coenzyme Q
 23. ATP synthesis during ETS is called — A) Photophosphorylation B) Substrate level phosphorylation C) Oxidative phosphorylation D) Allosteric phosphorylation
24. How many ATP molecules are produced from one NADH through ETS? A) 1 B) 2 C) 3 D) 4
25. How many ATP molecules are produced from one FADH ₂ ? A) 1 B) 2 C) 3 D) 4
26. The total ATP yield from complete oxidation of one molecule of glucose in aerobic respiration is — A) 30 B) 32 C) 36 or 38 D) 40
27. In plants, anaerobic respiration occurs in —A) Waterlogged roots B) Leaves C) Stems D) Flowers
28. The end products of alcoholic fermentation are — A) CO ₂ + Ethanol B) CO ₂ + Lactic acid C) CO ₂ + Acetyl-CoA D) H ₂ O + CO ₂

29. The end product of lactic acid fermentation is — A) Ethanol B) Lactic acid C) Acetyl CoA D) Pyruvate
30. The enzyme responsible for conversion of pyruvate to ethanol is — A) Pyruvate decarboxylase B) Alcohol dehydrogenase C) Both A and B D) Lactate dehydrogenase
31. During fermentation, how many ATP molecules are formed per glucose? A) 1 B) 2 C) 3 D) 4
32. The respiratory quotient (RQ) is defined as — A) CO_2 evolved / O_2 consumed B) O_2 consumed / CO_2 evolved C) $CO_2 \times O_2$ D) O_2 – CO_2
33. The RQ of glucose is — A) 0.7 B) 1.0 C) 0.9 D) 0.5
34. The RQ of fats is — A) 1.0 B) 0.7 C) 0.9 D) 0.5
35. The RQ of proteins is approximately — A) 1.0 B) 0.9 C) 0.8 D) 0.7
36. The RQ of organic acids is usually — A) >1 B) <1 C) 1 D) 0
37. The anaerobic respiration in yeast produces — A) CO ₂ and ethanol B) CO ₂ and water C) CO ₂ and acetyl CoA D) None
38. The net ATP gain during glycolysis per glucose molecule is — A) 1 B) 2 C) 3 D) 4
39. The coenzyme required for decarboxylation of pyruvate is — A) Thiamine pyrophosphate (TPP) B) NADH C) FAD D) CoA
40. The hydrogen carrier in glycolysis is — A) NAD ⁺ B) FAD C) FMN D) CoA
41. The site of glycolysis is —A) Cytoplasm B) Mitochondria C) Nucleus D) Ribosome
42. In mitochondria, ATP synthesis occurs in — A) F ₁ headpiece B) F ₀ stalk C) Both D) Cristae
 43. ATP is formed during Krebs cycle by — A) Substrate-level phosphorylation B) Oxidative phosphorylation C) Chemiosmosis D) Reduction
44. The respiratory enzymes are located in —A) Mitochondria B) Chloroplast C) Cytoplasm D) Lysosomes

- **45.** In plants, the gaseous exchange occurs through —
- A) Stomata and lenticels B) Cuticle C) Epidermis only D) Only stomata
- **46.** The first compound to enter the TCA cycle is —
- A) Acetyl CoA B) Oxaloacetate C) Pyruvate D) Citrate
- **47.** The product formed at the end of electron transport chain is —
- A) Water B) Hydrogen C) ATP only D) Oxygen
- **48.** The enzyme complex involved in ATP synthesis is —
- A) F₀F₁ ATP synthase B) NADH dehydrogenase C) Cytochrome oxidase D) Pyruvate dehydrogenase
- **49.** Total number of NADH produced per glucose molecule in aerobic respiration —
- A) 4 B) 6 C) 8 D) 10
- **50.** The main purpose of respiration is to —
- A) Release energy as ATP B) Produce CO₂ C) Store glucose D) Produce NADH

Answer Key (Set 2)

1-B, 2-A, 3-B, 4-A, 5-B, 6-B, 7-B, 8-A, 9-B, 10-B,

11-B, 12-C, 13-A, 14-B, 15-A, 16-B, 17-A, 18-B, 19-A, 20-A,

21-A, 22-A, 23-C, 24-C, 25-B, 26-C, 27-A, 28-A, 29-B, 30-C,

31-B, 32-A, 33-B, 34-B, 35-D, 36-A, 37-A, 38-B, 39-A, 40-A,

41-A, 42-A, 43-A, 44-A, 45-A, 46-A, 47-A, 48-A, 49-D, 50-A.