



BIOLOGY

BOOKS - MBD BIOLOGY (ODIA ENGLISH)

RESPIRATION IN PLANTS

Question Bank

1. Which of the following is produced in oxidative pentose phosphate pathway?

A. Pyruvic acid

B. Acetyl CoA

 $\mathsf{C}.\, NADH_2$

D. NADPH

Answer: D

Watch Video Solution

2. Cytochrome oxidase is a/an:

A. Exoenzyme

B. Endoenzyme

C. Proenzyme

D. Coenzyme

Answer: B

Watch Video Solution

3. Lactic acid is formed by the process of:

A. Fermentation

B. Glycolysis

C. HMP pathways

D. None of them

Answer: A

?



4. Which one is not correct about Krebs' cycle

A. It is also called citric acid cycle

B. The intermediate' compound which links

glycolysis with krebs' cycle is malic acid

C. It occurs in mitochondria

D. It starts with six carbon compound

Answer: B

> Watch Video Solution

5. The net gain of ATP during glycolysis is:

B. eight

C. two

D. four

Answer: C

Watch Video Solution

6. The overall goal of glycolysis, Krebs' cycle and the electron transport system is the formation of: A. ATP in one large oxidation reaction

B. Sugars

C. Nucleic acids

D. ATP in small stepwise units

Answer: D

Watch Video Solution

7. Glycolysis occurs in:

A. Nucleus

B. Cytoplasm

C. Mitochondria

D. Lysosome

Answer: B

Watch Video Solution

8. In glycolysis enzyme playing key role in splitting 6C compound into 3C compound is:

A. Hexokinase

- B. Aldolase
- C. Isomerase
- D. None of these

Answer: B

Watch Video Solution

9. The energy releasing process in which the substrate is oxidised without an external electron aceptor is called :

- A. Aerobic respiration
- B. Glycolysis
- C. Fermentation
- D. Photorespiration

Answer: B



10. The cliemiosmotic coupling hypothesis of oxidative phosphorylation processes that

adenosine triphosphate (ATP) is formed

because:

- A. A proton gradient forms across the inner membrane
- B. There is a change in the permeability of
 - the inner mitochondrial membrane

toward adenosine diphosphate(ADP)

C. High energy bonds are formed in mitochondrial proteins.

D. ADP is pumped out of the matrix into

the intermembrane space

Answer: A

Watch Video Solution

11. The end product of glycolysis is:

A. Pyruvate

B. Oxalo acetate

C. Glucose

D. Galactose

Answer: A

Watch Video Solution

12. The details of tricarboxylic acid path was worked out by:

A. Meischer

B. Hans Krebs

C. Pasteur

D. None of these

Answer: B

Watch Video Solution

13. In succulent plants like Opuntia, the RQ value will be:

A. Less than 1

B. More than 1

C. Infinity

D. Zero

Answer: D

Watch Video Solution

14. What is the net ATP molecules gain, when 4 molecules of glucose undergo anaerobic respiration in plants ?

A. 8 ATP

B. 20ATP

C. 144ATP

D. 16ATP

Answer: A



15. The R.Q. is less than 1.0 in a respiratory

metabolism, it would mean that:

A. Carbohydrates are used as respiratory

substrate

B. Organic acids are used as respiratory substrate C. The oxidation of the respiratory substrate consumed more oxygen than the amount of CO_2 released D. The' oxidation of the respiratory substrate consumed less oxygen than the amount of CO_2 released

Answer: C

16. In cellular respiration, the final acceptor molecule of proton is:

A. NAD

B. FAD

C. NADP

D. Oxygen

Answer: D

17. Oxidative phosphorylation refers to:

A. Anaerobic production of ATP

- B. The citric acid cycle production of ATP
- C. Production of ATP by chemiosmosis
- D. Alcoholic fermentation

Answer: C

18. The respiratory quotient during cellular respiration would depend on:

A. The amount of carbon dioxide released

B. The amount of oxygen utilised

C. The nature of enzymes involved

D. The nature of the substrate

Answer: D

19. Acetyl CoA is produced from pyruvate by:

A. Oxidative decarboxylation

B. Oxidative photophosphorylation

C. Oxidative hydrogenation.

D. Oxidative photorespiration

Answer: A



20. During aerobic respiration maximum ATP is

synthesized by:

A. ETS

B. Krebs' cycle

C. Glycolysis

D. Fermentation

Answer: A

21. In which of the following O_2 is directly used:

A. Glycolysis

B. Fermentation

C. Electron transport chain

D. Oxidative decarboxylation

Answer: C

22. Which of the following is the key intermediate compound linking glycolysis to krebs' cycle?

A. NADH

B. ATP

C. Acetyle CoA

D. Malic acid

Answer: C

23. FAD acts as an electron acceptor in between:

A. Fumaric and malic acid

B. Succinic and fumaric acid

C. Malate and oxaloacetic acid

D. Citric and isocitric acid

Answer: B

24. In Krebs' cycle OAA accepts acetyl CoA to

form:

A. Citric acid

B. Succinate

C. Fumarate

D. Succinyl CoA

Answer: A

25. The number of ATP produced when a molecular of glucose undergoes fermentation is:

A. 4

B. 36

C. 2

D. 38

Answer: C



26. In mitochondria, protons accumulate in the:

A. Outer membrane

B. Inner membrane

C. Intermembrane space

D. Matrix

Answer: C

27. The TCA enzyme is found in:

A. Peroxisomes

B. Ribosomes

C. Mitochondrial matrix

D. Cytoplasm

Answer: C

28. Chemiosmotic theory of ATP synthesis in

the mitochondrion is based on:

- A. Ca^{++} gradient
- B. K^+ gradient
- C. H^+ gradient
- D. Na^+ gradient

Answer: C

29. In aerobic respiration, total number of ATP

molecules formed from 1 glucose molecule is:

A. 38

B. 32

C. 36

D. 30

Answer: C



30. The substrate for pentose phosphate pathway is:

A. Glucose-6-phosphate

B. Glucose-1-phosphate

C. Fructose-6-phosphate

D. Fructose-1-phosphate

Answer: A

31. How many ATP molecules will be generated

in a plant system during complete oxidation of

40 moles of glucose ?

A. 190

B. 380

C. 1520

D. 3040

Answer: C

32. Mitochondria are store house of:

A. Glycogen

B. Glucose

C. ATP

D. Fat

Answer: C



33. Respiration is:

- A. Anabolic process
- B. Catabolic process
- C. Chemical process
- D. Oxidative process

Answer: B

Watch Video Solution

34. Raw materials for respiration is:

A. Glucose and CO_2

- B. Glucose and fructose
- C. Glucose and Pyruvate
- D. Glucose and O_2

Answer: D

Watch Video Solution

35. Total ATP molecules produced during EMP

pathway is:

B. 8

C. 36

D. 38

Answer: B

Watch Video Solution

36. Respiration is an____process.

A. Exothermic

B. Endothermic

C. Endergonic

D. Anabolic

Answer: A



37. Oxidation of $FADH_2$ results in formation

of:

A. 3 ATP

B. 2 ATP

C. 1 ATP

D. No ATP

Answer: B

Watch Video Solution

38. During respiration, if $X+6O_2 ightarrow 6CO_2+Y+Z+$ energy, then X may be:

A. Glucose

B. Organic

C. Fat

D. Protein

Answer: C

Watch Video Solution

39. RQ is highest in:

A. Glucose

C. Protein

D. Malic acid

Answer: D



40. Cytochromes act as:

- A. CO_2 acceptor
- B. O_2 acceptor
- C. Electron acceptor

D. Proton acceptor

Answer: C

Watch Video Solution

41. What causes RQ to vary?

- A. Respiratory product
- B. Respiratory substrate
- C. Temperature
- D. Light & O_2





42. In eukaryotes net gain of ATP in complete oxidation of one molecule of g1ucose is:

A. 20 ATP

B. 36 ATP

C. 38 ATP

D. 56 ATP





43. Which is the link between glycolysis and Krebs cycle[.]?

A. Glucose

B. Cytochrome

C. Acetyle-CoA

D. Pyruvate





44. Which one yields the maximum energy?

A. Krebs cycle

- B. Anaerobic respiration
- C. Glycolysis
- D. Aerobic respiration

Answer: D



45. How much usable energy is available during oxidative combustion of 1 gm mole of glucose in the body?

A. 686000 cal

B. 304000 cal

C. 277400 cal

D. 686 cal





46. Correct sequence of electron acceptors in

ATP synthesis is:

A. Cyt a, a_3 , b,c

B. Cyt b, c, a, a_3

C. Cyt c, b, a, a_3

D. Cyt b, c, a_3 , a

Answer: B





47. Electron transport system of mitochondria

is located in:

A. Outermembrane

B. Inner membrane

C. Inter-cristal space

D. Outer chamber

Answer: B

48. In respiration 180 gm of glucose with 192 gm of oxygen produces:

A. 108 gm of water, 264 gm of CO_2 , 686

kcal of energy

B. 100 gm of water, 384gm of CO_2 , 686

kcal of energy

C. 348 gm of water, 108 gm of CO_2 , 686

kcal of energy

D. 108 gm of water 348 gm of CO_2 , 868

Answer: A



49. Enzymes of Krebs cycle are located in the matrix of mitochondria except one which is located in the inner mitochondrial membrane. Name the enzyme.

A. Citrate synthetase

- B. $\propto~$ ketoglutarate dehydrogenase
- C. Succinate dehydrogenase

D. Malate dehydrogenase

Answer: C

Watch Video Solution

50. In plant cell glycolysis operates in:

A. Mitochondria

B. Peroxisome

C. Mesosome

D. Cytoplasm





51. How many molecules of oxygen are used during glycolysis of one glucose molecule ?

A. 38

B. 34

C. 2

D. 0





52. The reactions of TCA cycle occur in:

A. Ribosomes

- B. Grana
- C. Mitochondria
- D. Endoplasmic reticulum

Answer: C



53. In anaerobic respiration the net gain of ATP

per glucose molecule oxidised is.:

A. 2 ATP molecules

B. 4 ATP molecules

C. 30 ATP molecules

D. 6 ATP molecules

Answer: A





54. Which of the following is common to both.

aerobic and anaerobic respiration ?

A. ETC

B. Glycolysis

C. Krebs cycle

D. Oxidative decarboxylation

Answer: B

55. End product of glycolysis is:

A. Lactic acid

B. Pyruvic acid

C. Aspartic acid

D. Acetyl-CoA

Answer: B

56. Main source of ATP in a cell is:

A. Glycolysis

B. ETS

C. Krebs cycle

D. Fermentation

Answer: B

57. In the ETC, the final cytochrome acting as

electron acceptor is:

A. Cytochrome b

B. Cytochrome a

C. Cytochrome a3

D. O2

Answer: D

58. Hexose monophosphate pathway occurs in:

A. Mitochondrial matrix

B. Cristae

C. Cytoplasm

D. ER

Answer: C

59. During ripening of some fniits (e.g. apple, banana), there is sudden increase in sudden increase in respiration rate which is called:

A. Climacteric

B. Climatic

C. Pasteur effect

D. Anthesis

Answer: A

60. Which of the followings yields the highest

energy per gram ?

A. Glucose

B. Amino acid

C. Protein

D. Fat

Answer: D

61. In aerobic respiration, one citric acid cycle

synthesizes how many ATP molecules ?

A. 38

B. 36

C. 15

D. 2

Answer: D

62. Other name of glycolysis is:

A. EMP-pathway

B. TCA cycle

C. HMS-pathway

D. Carbon-pathway

Answer: A

63. Out of 38 ATP molecules produced per glucose, 30 ATP molecules are formed from $NAD\frac{H}{F}ADH_2$ in:

A. EMP

B. Kerbs cycle

C. Respiratory chain

D. Oxidative decarboxylation

Answer: C

64. As compared to anaerobic respiration, the

energy released during aerobic respiration is:

A. 8times

B. 12 times

C. 18 times

D. 36 times

Answer: C

65. Substrate level phosphorylation occurs when:

A. Succinic acid changes to fumaric acid

B. Fumaric acid change to malic acid

C. Succinyl CoA changes to succinic acid

D. Oxaloacetic acid changes to \propto

ketoglutaric acid

Answer: C

66. How many ATP molecules are formed during anaerobic respiration?

A. 2

B.4

C. 6

D. 8

Answer: B

67. Anaerobic respiration in animals produces:

A. CO_2 and H_2O

В. C_2H_5OH , CO_2

C. Lactic acid and H_2O

D. Pyruvic acid and H_2O

Answer: C

68. Most of the energy in the cells is liberated by oxidation of carbohydrates when

- A. Glucose is converted to alcohol and CO_2
- B. Sugar is converted to pyruvic acid
- C. Pyruvic acid is converted to CO_2 and

 H_2O

D. Pyruvic acid is converted to CoA

Answer: C



69. Synthesis of ATP in mitochondria requires:

A. NADP

B. FMN

C. Oxygen

D. Pyruvic acid

Answer: C

70. The six carbon containing acid formed in krebs cycle is:

A. Oxaloacetic acid

B. Citric acid

C. Ketoglutaric acid

D. Succinic acid

Answer: B

71. In ETS, which is the cytochrome that reacts

with oxygen

A. Cyt a

- B. Cyt b
- C. Cyt b_6
- D. Cyt a_3

Answer: D



72. The correct sequence in Krebs cycle is:

A. Isocitric acid ightarrow Oxalosuccinic acid ightarrow

 \propto -Ketoglutaric acid

B. Oxalosuccinic acid ightarrow Isocitric acid ightarrow

 \propto -Ketoglutaric acid

C. \propto -Ketoglutaric acid \rightarrow Isocitric acid

ightarrow Oxalosuccinic acid

D. Isocitric acid ightarrow -Ketoglutaric acid

ightarrow Oxalosuccinic acid





73. One mole of glucose on metabolism liberates how many kilocalories of energy ?

A. 180

B. 80

C. 160

D. 380

Answer: D



74. Which of thefollowing plantparts can respire even in the absence of oxygen?

A. Seeds

B. Roots

C. Stems

D. Leaves

Answer: B



75. How many molecules of $NADH_2$ reproduced when four molecules of phosphoglyceraldehyde are converted into four molecules of pyruvate?

A. 2

B.4

D. 8

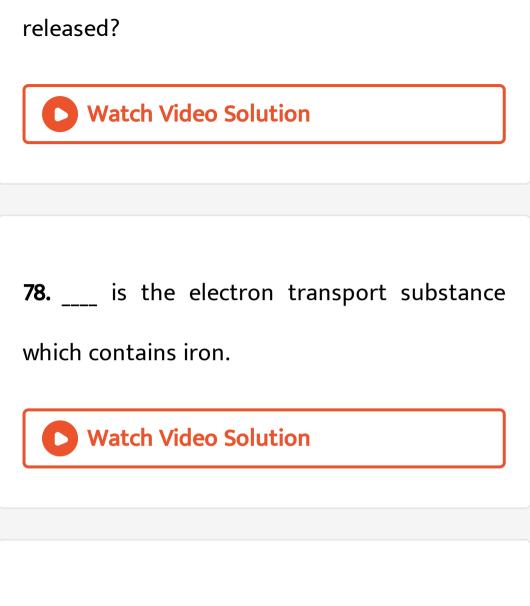
Answer: B

Watch Video Solution

76. The net gain of ATP during glycolysis is:

Watch Video Solution

77. When one molecule of acetyl CoA enters Krebs cycle, how many molecules of CO_2 are



79. The ultimate oxidising agent in aerobic

respiration is_____.



80. Number of NADH molecules formed from

glucose during anarobic respiration is____.

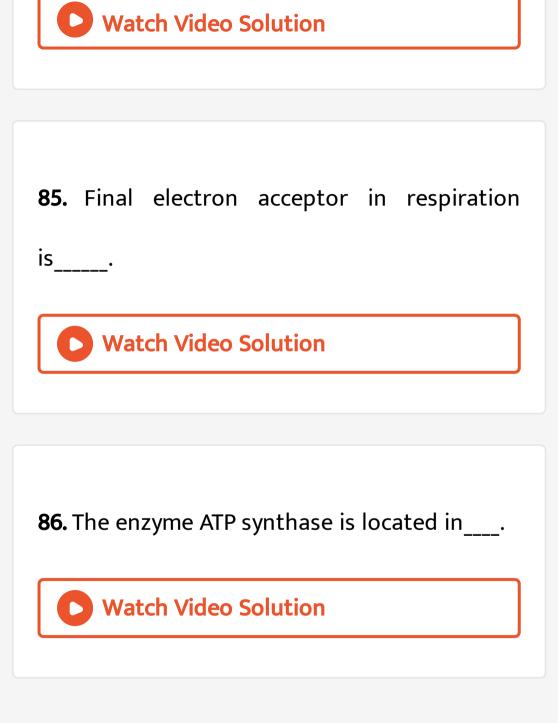


81. RQ value of fat and protein is less than one

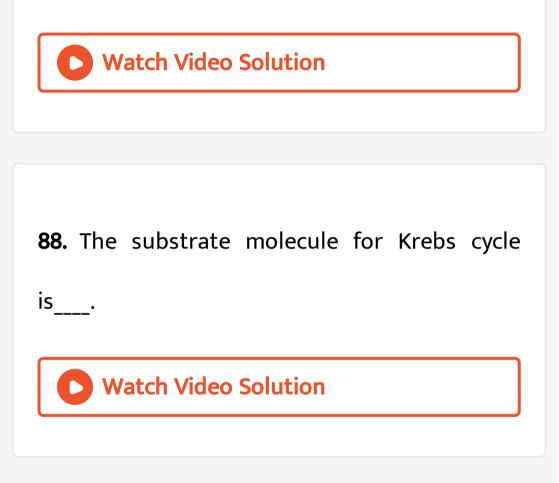
because they contain more_____.

82. Number of NADH molecules formed from glucose during anarobic respiration is . Watch Video Solution 83. During glycolysis _____molecules of NADH are formed Watch Video Solution

84. Other name of glycolysis is____pathway.



87. Acceptor molecule for Krebs cycle is_____.



89. ATP formation by oxidation of substrates is

called____.



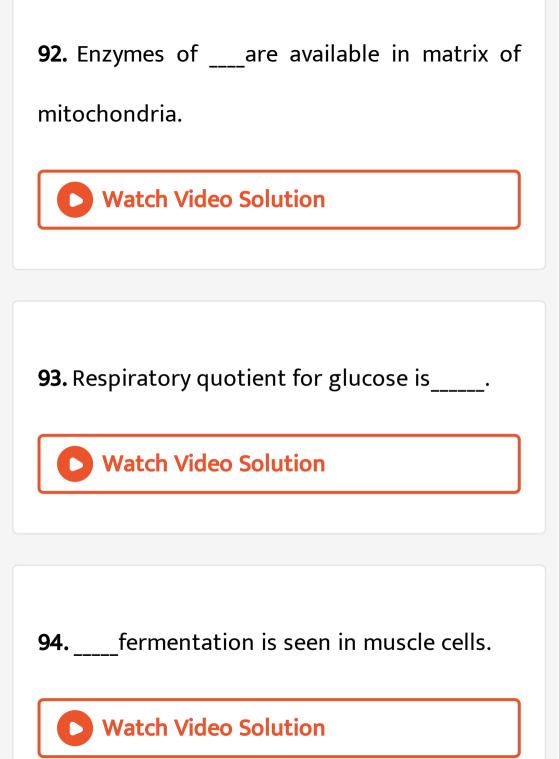
90. The stage at which the rate of evolution of

 CO_2 is equal to the rate of consumption of

 CO_2 is called_____.

Watch Video Solution

91. _____is the universal hydrogen acceptor.



95. _____is the terminal electron carrier in respiratory chain.

Watch Video Solution

96. Aerobic respiration produces energy

about ______times than in anaerobic respiration.

97. ATP formation by oxidation of substrates is called____. Watch Video Solution 98. Process of degradation of glucose to pyruvic acid. Watch Video Solution

99. Enzyme complex responsible for alcoholic

fermentation by yeast.

Watch Video Solution

100. Ratio between volume of CO_2 evolved to

volume of O_2 consumed during respiration.

101. The stage at which the rate of evolution of CO_2 is equal to the rate of consumption of CO_2 is called____.



102. Synthesis of glucose from non-carbohydrate sources.



103. WRITE SHORT NOTES ON: Fermentration



104. WRITE SHORT NOTES ON: Respiratory

quotient

Watch Video Solution

105. WRITE SHORT NOTES ON: Glycolysis

106. DISTINGUISH BETWEEN: Aerobic and

anaerobic respiration



107. DISTINGUISH BETWEEN: Anaerobic

respiration and Fermentation

108. DISTINGUISH BETWEEN: Photosynthesis

and respiration

Watch Video Solution

109. DISTINGUISH BETWEEN: Photorespiration

and respiration



110. Give an account of glycolysis.

