

Questionbank Biology

Unit -IV**Chapter-17. Respiration****IMPORTANT POINTS**

- Important of Respiration in living organisms.
The breakdown of C-C bonds of complex compounds through oxidation with in cell releasing considerable amount of energy is called respiration.
- Glycolysis : The breakdown of glucose to pyruvic acid is called glycolysis. This process occurs in the cytoplasm of cells.
- There are three major ways in which different cell handle pyruvic acid these are lactic acid fermentation, alcoholic fermentation and aerobic respiration.
- Aerobic respiration includes krebs cycle and oxidative phosphorylation in addition to glycolysis.
- All reaction of krebs cycle are carried out in the matrix of mitochondria and ETS (oxidative phosphorylation) carried out on inner membrane of mitochondria.
- Respiratory pathway is involved in both anabolic and catabolic processes and hence it is also known as an amphibolic pathway rather than as a catabolic one.
- During aerobic respiration O_2 is consumed and CO_2 is released. The ratio of CO_2 to the O_2 consumed during respiration is called Respiratory Quotient (RQ)

For the given options select the correct options (a, b, c, d) each carries one mark.

1. Respiration is (Grujarat GET Q.B.)

(a) Anabolic process	(b) Catabolic process
(c) Both a and b	(d) Endothermic process.
2. Metabolism involves

(a) Anabolic process	(b) Catabolic process
(c) Both a and b	(d) Only redox process
3. Organisms obtain energy through

(a) Reproduction	(b) Excretion	(c) Respiration	(d) Digestion
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4. Respiration is a

(a) Endergonic process	(b) Exergonic process
(c) Both A and B	(d) Neutralisation reaction
5. During respiration the food is

(a) Oxidised	(b) Reduced
(c) Both oxidised and reduced	(d) Neither oxidised nor reduced
6. Which of the following is a main respiratory substrate in animals

(a) Fructose	(b) Starch	(c) Glucose	(d) Proteins
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7. During the formation of ATP from ADP, which is released
(a) Water (b) Oxygen (c) Both A and B (d) Energy
8. Respiration is found in
(a) Bacteria (b) Prokaryotes (c) Only animals (d) All these
9. Respiratory substrate is completely oxidised in
(a) Aerobic respiration (b) Anaerobic' respiration.
(c) Both A and B (d) Fermentation
10. In which of the following types of respiration, the amount of energy released is comparatively more
(a) Aerobic respiration (b) Anaerobic respiration
(c) Equal energy is released in both A and B (d) None of these in correct
11. Fermentation occurs in the
(a) Presence of oxygen (b) Presence of water
(c) Absence of oxygen (d) Mitochondria
12. First stage in respiration is
(a) Glycolysis (b) Krebs cycle (c) ETS (d) Glycogenesis
13. Glucose is converted to pyruvic acid in
(a) Krebs cycle (b) C₄ cycle (c) C₃ cycle (d) Glycolysis.
14. Number of pyruvic acid molecules formed in glycolysis is (Gujarat GET Q.B.)
(a) 1 (b) 2 (c) 3 (d) 6
15. Number of carbons present in a pyruvic acid t molecule is
(a) 2 (b) 3 (c) 4 (d) 6
16. Glycolysis occurs in (Gujarat GET Q.B.)
(a) Cytoplasm (b) Mitochondria (c) Chloroplast (d) Golgi complex
17. Number of oxygen molecules used in glycolysis
(a) 12 (b) 4 (c) 6 (d) 0
18. Number of CO₂ molecules produced in glycolysis is
(a) 2 (b) 3 (c) 4 (d) 0
19. In respiration, final acceptor of protons is :
(a) Oxygen (b) NAD⁺ (c) FAD (d) UQ
20. Which is not formed during anaerobic respiration ?
(a) Pyruvate (b) Ethyl alcohol (c) Acetyl CoA (d) CO₂
21. ADP combines with inorganic phosphate (Pi) to give
(a) ATP (b) AMK (c) GDP (d) GTP
22. Dihydroxy acetone phosphate is a
(a) 2 C compound (b) 3 C compound (c) 4 C compound (d) 6 C compound
23. Number of ATPs consumed in glycolysis are
(a) 2 (b) 4 (c) 6 (d) 8

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24. Substrate in glycolysis is normally
(a) Fructose (b) Glucose
(c) Pyruvic acid (d) Phosphoglyceric acid
25. Decarboxylation of pyruvic acid results in the formation of
(a) Water (b) Acetyl CoA (c) Glucose (d) PGA.
26. Number of direct ATPs produced in glycolysis is (Gujarat GET Q.B.)
(a) 2 (b) 4 (c) 6 (d) 1
27. Number of reduced coenzymes NADH produced during glycolysis are
(a) 1 (b) 2 (c) 4 (d) 6
28. Net gain of glycolysis is
(a) 3 ATP and 1 NADH + H⁺ (b) 2 ATP and 2 NADH + H⁺
(c) 6 ATP and 4 NADH + H⁺ (d) 10 ATP and 6 NADH + H⁺
29. In respiration, the oxygen is used in
(a) Glycolysis (b) Krebs cycle (c) ETS (d) Fermentation
30. One molecules of NADH + H⁺ gives how many ATPs in ETS (Gujarat CETQ.B.)
(a) 2 ATP (b) 3 ATP (c) 4 ATP (d) 6 ATP
31. Conversion of pyruvic acid to acetyl Co A is called
(a) Glycolysis (b) Fermentation
(c) ETS (d) Oxidative decarboxylation
32. Reduction of acetaldehyde gives
(a) Methyl alcohol (b) Ethyl alcohol (c) Glycerol (d) All these
33. Lactic acid is formed due to the reduction of (Gujarat GET Q.B.)
(a) Pyruvic acid (b) Acetaldehyde (c) Malic acid (d) Acetyl CoA
34. Fermentation is the primary mode of energy production in
(a) Higher plants (b) Animals (c) Yeast (d) Algae.
35. Krebs cycle occurs in (Gujarat GET Q.B.)
(a) Cytoplasmic matrix (b) Mitochondrial matrix
(c) F₁ particles (d) All these
36. Krebs cycle is also known as
(a) Citric acid cycle (b) TCA cycle (c) Both a and b (d) Calvin cycle
37. The location of ETS is ;
(a) Mitochondria! matrix (b) Cytoplasm
(c) Outer mitochondrial membranes (d) Inner mitochondrial membrane
38. Krebs cycle starts with the condensation of acetyl CoA with
(a) Pyruvic acid (b) Oxalo-acetic acid (c) Malic acid (d) Citric acid
39. α - keto glutaric acid consists of
(a) 3 carbons (b) 4 carbons (c) 5 carbons (d) 6 carbons

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40. Citric acid cycle was proposed by
(a) Krebs (b) Calvin (c) Mendel (d) Lavoisier
41. Direct synthesis of ATPs in one turn of Krebs cycle is
(a) 1 (b) 2 (c) 3 (d) 4
42. Number of $\text{NADH}^+ \text{H}^+$, formed in one turn of Krebs cycle is
(a) 2 (b) 4 (c) 6 (d) 5
43. Number of FADH_2 formed in one turn of Krebs cycle is
(a) 1 (b) 2 (c) 3 (d) 4
44. Number of ATPs which can be generated by one FADH_2 in ETS are (Gujarat GET Q.B.)
(a) 1 (b) 2 (c) 3 (d) 4
45. Formation of ATPs in mitochondria is known as
(a) Oxidative phosphorylation (b) Cyclic photophosphorylation
(c) Noncyclic photophosphorylation (d) Fermentation
46. Formation of ATP occurs
(a) In outer mitochondrial membrane (b) On F_1 particles
(c) Mitochondrial matrix (d) In mitochondrial DNA
47. Phosphorylation means
(a) Formation of reduced coenzymes (b) Formation of PGA
(c) Formation of ATP (d) Breakdown of ATP
48. Oxidative phosphorylation occurs in
(a) Mitochondria (b) Chloroplast (c) Cytoplasm (d) Golgi bodies
49. The metal ion present in cytochromes is
(a) Copper (b) Iron (c) Magnesium (d) Zinc
50. CO_2 release occurs in
(a) Photosynthesis (b) Respiration (c) Transpiration (d) Guttation
51. R.Q. stands for
(a) Reduction quotient (b) Respiratory quotient (c) Reverse quotient (d) None of these
52. R.Q. of carbohydrates is
(a) 1 (b) 2 (c) 3 (d) 4
53. R.Q. of anaerobic respiration is
(a) Zero (b) Infinity (c) Less than one (d) More than one
54. When amount of CO_2 taken from atmosphere (in photosynthesis) becomes equal to the amount of CO_2 released in atmosphere (in respiration), this is called
(a) Final point (b) Compensation point
(c) Balance point (d) Equal distribution
55. Alternative pathway for respiration is
(a) Photorespiration (b) Pentose phosphate pathway
(c) C_3 cycle (d) C_4 cycle

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56. Which of the following processes is common for aerobic and anaerobic respiration
(a) Glycolysis (b) Krebs cycle (c) ETS (d) None of these
57. Anaerobic respiration is also called
(a) Fermentation (b) PPP pathway (c) Glycolysis (d) Krebs cycle
58. How many ATP are formed during dephosphorylation in glycolysis ?
(a) 2ATP (b) 4ATP (c) 3 ATP (d) 6ATP
59. R.Q. of oxalic acid is
(a) Infinity (b) 4 (c) 0.7 (d) 1
60. Which process occurs in cytosol ?
(a) Photosynthesis (b) Krebs cycle
(c) Glycolysis (d) Oxidative phosphorylation
61. Synthetic processes of a cell comes under
(a) Anabolism (b) Metabolism (c) Catabolism (d) Growth
62. Degradation processes of a cell are referred under
(a) Anabolism (b) Catabolism (c) Metabolism (d) Growth
63. Pyruvic acid is
(a) $\text{CH}_3\text{COCO}_2\text{H}$ (b) CH_3CHO (c) $\text{CH}_3\text{CHOH CO}_2\text{H}$ (d) $\text{CH}_3\text{CH}_2\text{OH}$
64. CH_3CHO is
(a) Acetaldehyde (b) Pyruvic acid (c) Ethanol (d) Lactic acid
65. $\text{CH}_3\text{CH}_2\text{OH}$ represents
(a) Lactic acid (b) Acetic acid (c) Ethanol (d) Pyruvic acid
66. Respiratory substances are
(a) Substances available from air (b) Nutritive substances present in food
(c) Mineral elements (d) Excretory substances
67. For aerobic respiration, it is essential
(a) O_2 (b) CO_2 (c) CO (d) H_2S
68. Acetaldehyde is formed from pyruvic acid, if it is removed
(a) H_2 (b) CHO (c) 2 OH (d) CO_2
69. Respiration type occurring in human red blood corpuscles is
(a) Anaerobic (b) Aerobic (c) Both A and B (d) Fermentation
70. Yeast
(a) Respires anaerobically, due to lack of mitochondria
(b) Respires aerobically, if it gets O_2 , otherwise perform alcoholic fermentation
(c) Respires aerobically
(d) Can perform alcoholic fermentation

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71. The end product of glycolysis of a glucose molecule is
(a) Pyruvic acid, NADH_2 and ADP (b) Pyruvic acid, 2H^+ , 2e^- and 4 ATP
(c) 2 Pyruvic acid, 2NADH_2 and ATP (d) 2 Pyruvic acid, NADH_2 and 2 ATP
72. The enzyme required to form acetaldehyde from pyruvic acid is
(a) Hexokinase (b) Oxidase
(c) Pyruvic acid decarboxylase (d) Alcohol dehydrogenase
73. Phosphorylation in general is _____
(a) Combination of phosphoric acid with a chemical
(b) Formation of PGA by adding P to glycerate
(c) Addition of ATP to glucose
(d) Synthesis ATP from ADP and P
74. Fructose 1,6 biphosphate splits into
(a) PGAL and DHAP (b) PGAL and PGA (c) PGAL and BPGA (d) PGA and BPGA.
75. Oxidative phosphorylation occurs in
(a) Cytosol (b) Cristae
(c) Mitochondrial matrix (d) Endoplasmic reticulum,
76. Malic acid is formed from fumaric acid
(a) By addition of CO_2 (b) By addition of H_2O (c) By removal of H_2O (d) By removal of CO_2
77. If CO_2 and 2H are removed from pyruvic acid, it is formed
(a) Acetyl co-enzyme A (b) Citric acid (c) Acetate (d) Co-A
78. It is by-product of Kреб's cycle
(a) Oxaloacetic acid (b) Citric acid (c) Acetyl co-enzyme (d) Acetate.
79. One ATP is formed when
(a) Succinic acid \rightarrow Fumaric acid (b) α -ketoglutaric acid \rightarrow Succinyl CoA
(c) Succinyl CoA \rightarrow Succinic acid (d) Fumaric acid \rightarrow Malic acid.
80. Respiratory quotient and compensation point are
(a) Not related (b) Inverse to each other
(c) Same (d) Applicable to.all organisms.
81. $\text{RQ} = 1$, is
(a) The multiplication O_2 consumed O_2 and released CO_2
(b) The amount of O_2 , consumed and CO_2 released are the same
(c) One CO_2 molecule more released than O_2 molecule consumed
(d) One O_2 molecule more consumed than CO_2 molecules released

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82. If RQ is 0.7, the substance needs
- (a) More O₂ for respiration
 - (b) Less O₂ for respiration
 - (c) O₂ is not used for its respiration
 - (d) The substance has more oxygen in its constitution
83. The site of occurrence of all reactions of PPP is
- (a) Cytosol
 - (b) Mitochondrial matrix
 - (c) Cristae
 - (d) Thylakoid matrix
84. The process occurring during Krebs's cycle is
- (a) Decarboxylation and dehydrogenation
 - (b) Decarboxylation, dehydrogenation and phosphorylation
 - (c) Decarboxylation and phosphorylation
 - (d) Dehydrogenation and phosphorylation
85. During glycolysis water is released from
- (a) 2, Phosphoglyceric acid
 - (b) Biphosphoglyceric acid
 - (c) Phosphoenol pyruvic acid
 - (d) Phosphoglyceraldehyde
86. When human muscle contracts :
- (a) Respiration does not occur
 - (b) Anaerobic respiration occurs, if supply of oxygen is insufficient
 - (c) Anaerobic respiration never occurs
 - (d) Always anaerobic respiration occurs.
87. The correct sequence of the three processes of aerobic respiration is
- (a) Glycolysis, Krebs's cycle, oxidative phosphorylation.
 - (b) Glycolysis, oxidative phosphorylation and Krebs's cycle
 - (c) Krebs's cycle, glycolysis and oxidative phosphorylation
 - (d) oxidative phosphorylation, Krebs's cycle, glycolysis
88. During PPP, RuBP is formed in
- (a) Mitochondria
 - (b) Cytosol
 - (c) Stroma
 - (d) Chloroplas
89. The number of ATP molecules formed in oxidative phosphorylation of one glucose molecule
- (a) 6
 - (b) 14
 - (c) 28
 - (d) 34
90. The number of ATP molecules formed in oxidative phosphorylation of 1 pyruvic acid
- (a) 6
 - (b) 14
 - (c) 28
 - (d) 34
91. How much energy spent in transport of one pyruvic acid to mitochondrion ?
- (a) Energy of 1 ATP
 - (b) No energy
 - (c) Energy of 2 ATP
 - (d) Not certain
92. In anaerobic respiration in plants (CM.C 1983, CPM.T. 1992)
- (a) Oxygen is absorbed
 - (b) Oxygen is released
 - (c) Carbon dioxide is released
 - (d) Carbon dioxide is absorbed.

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93. Krebs cycle takes place in
(CPMT. 1985, 1999, M.P.P.M.T. 1997, AMU. 2000, AFMC 2002, RPMT. 2005)
(a) Vesicles of E.R (b) Mitochondria (c) Dictyosomes (d) Chloroplasts.
94. By ETS, ATP-synthesis occurs on the (A.I.I.M.S. 1984)
(a) Outer membrane of mitochondrion (b) Inner membrane of mitochondrion
(c) Matrix (d) None of the above
95. Energy currency (reservoir) of the cells is
(BHU 1984, Kerala 2001, AMU 2003, MPPMT 2002)
(a) AMP (b) ATP (c) RNA (d) DNA
96. Complete oxidation of glucose into pyruvic acid with several intermediate steps is known as
(C.B.S.E. 1988; B.H.U. 1986, 1989)
(a) TCA-pathway (b) Glycolysis (c) HMS-pathway (d) Krebs cycle
97. When a molecule of pyruvic acid is subjected to anaerobic oxidation and forms lactic acid, there is
(RPMT. 1985 BHU. 1985)
(a) Loss of 3 ATP molecules (b) Loss of 6 ATP molecules
(c) Gain of 2 ATP molecules (d) Gain of 4 ATP molecules
98. Conversion of pyruvic acid into ethyl alcohol is facilitated by the enzyme (AMU. 1986)
(a) Decarboxylase (b) Dehydrogenase
(c) Decarboxylase and dehydrogenase (d) Phosphotase
99. RQ for fatty substance/fat is (DPMT 1985; Karnataka 1999)
(a) Infinity (b) Less than one (c) Greater than one (d) Zero
100. RQ for glucose carbohydrate is (D.P.M.T. 1985, Bih. PMT. 1990, RPMT. 1996, Wardha 2001)
(a) 1 (b) 0.5 (c) 2 (d) 0.05
101. An indispensable role in energy metabolism is played by (D.P.M.T. 1986)
(a) Sodium (b) Phosphorus (c) Calcium (d) Lithium
102. Instantaneous source of energy is {A.F.M.C. 1983}
(a) Glucose (b) Fats (c) Proteins (d) Amino acid.
103. ATP equivalents produced during oxidation of succinate to fumarate for one glucose molecule is/are
(R.PMT.1988)
(a) 1 (b) 2 (c) 3 (d) 4
104. Which of the following process is used in the conversion of pyruvate to acetyl CoA ?
(D.P.M.T. 1987; C.PMT 1990, Kerala 2004)
(a) Oxidative decarboxylation (b) Oxidative dehydrogenation
(c) Oxidative dehydration (d) Oxidative phosphorylation
105. During ATP synthesis electrons pass through (B.H.U.1980)
(a) H₂O (b) Cytochromes (c) CO₂ (d) O₂

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106. Net gain of ATP in glycolysis _____
(M.P.PMT. 1988; D.P.M.T. 1983, Pb. PMT. 2000, CPM.T. 2001)
(a) 6 (b) 2 (c) 4 (d) 8
107. The universal hydrogen acceptor is '
(C.P.M.T. 1980)
(a) NAD (b) ATP (c) CoA (d) FMN
108. Both respiration and photosynthesis require
(M.P.P.M.T. 1989,1993,1996; CPM.T, 1984, 1988, 1989,-B.H.U. 1995;A.FMC 1995)
(a) Sunlight (b) Chlorophyll (c) Glucose (d) Cytochromes
109. In an organism utilising carbohydrates as its source of energy anaerobically, the R.Q. is likely
(UPMER 1983)
(a) 0.7 (b) 0.9 (c) 1.0 (d) Infinity.
110. In plants energy is produced during the process of
(CPMT 1981)
(a) Photosynthesis (b) Transpiration (c) Respiration (d) Water absorption
111. In respiration pyruvic acid is
(MPPMT. 1986, 1988)
(a) Formed only when oxygen is available
(b) One of the products of Krebs cycle
(c) Broken down into a two carbon fragment and CO₂
(d) A result of protlipid breakdown.
112. Maximum number of ATP is synthesised during oxidation of
(R.P.M.T. 1990)
(a) β - amino acid (b) Malic acid (c) Palmitic acid (d) Glucose
113. NADP⁺ is reduced to NADPH in
(C.B.S.E. 1988)
(a) HMP (b) Calvin Cycle (c) Glycolysis (d) EMP
114. Incomplete breakdown of sugars in anaerobic respiration forms
(CPM.T. 1984,1988; M.P.P.M.T. 1987,1989)
(a) Fructose and water (b) Glucose and CO₂ (c) Alcohol and CO₂ (d) Water and CO₂
115. Which of the following is the source of respiration ?
(C.P.M.T. 1979)
(a) RNA (b) DNA (c) ATP (d) Stored food
116. Raw material of respiration is
(R.R.M.T. 199)
(a) Glucose and fructose (b) Glucose and sucrose
(c) Glucose + O₂ (d) Glucose + CO₂
117. Respiration is found in
(B.H.V. 1980)
(a) In all living cells in light (b) All living cells in dark
(c) In all living cells both in light and dark (d) Only in nongreen cells both in light and dark
118. Anaerobic respiration is
(CPMT. 1987)
(a) Extramolecular respiration (b) Molecular respiration
(c) Inter-molecular respiration (d) Intra-molecular respiration.

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119. Total gain of energy in anaerobic respiration from one glucose molecule is (CPMT. 1987)
 (a) Two ATP (b) One ATP (c) Four ATP (d) Three ATP
120. Final electron acceptor in respiration is (B.H.U. 1984, Karnataka 1994; A.F.M.C. 1998, A.M.U. 2001)
 (a) Hydrogen (b) Oxygen (c) Cytochromes (d) Dehydrogenases
121. Oxidative phosphorylation is found in (M.P.P.M.T. 1987, 2002)
 (a) Chloroplasts (b) Leucoplasts (c) Peroxisomes (d) Mitochondria
122. In *Opuntia* and other succulents, night time R.Q. is (CPMT, 1986)
 (a) One (b) More than one (c) Zero (d) Less than one
123. RQ of protein rich pulses is ' (RPMT. 1989)
 (a) Unity (b) Infinity (c) More than unity (d) Less than one
124. Oxidation of a molecule of acetyl CoA produces (RPMT. 1990)
 (a) 12 ATP (b) 15 ATP (c) 6 ATP (d) 19 ATP
125. Maximum amount of energy/ATP is liberated on oxidation of (AFMC 1984, 1988; CPMT. 1988; CB.S.E. 1994; AMU 1996)
 (a) Fats (b) Proteins (c) Starch (d) Vitamins
126. R.Q. is ratio of; (C.B.S.E.'1990;A.P.M.E.E. 1999, Glijarat GET Q.B.)
 (a) CO₂ produced to substrate consumed
 (b) CO₂ produced to O₂ consumed
 (c) Oxygen consumed to water produced
 (d) Oxygen consumed to CO₂ produced
127. Connecting link between glycolysis and Krebs cycle is/before entering Krebs cycle pyruvate is changed to (A.F.M.C, 1988; CB.S.E. 1992, 1997; R.PMT. 1992; M.P.P.M.T. 1987, 88, 93, 98, 2001, 2002; AMU. 1987, 2001; J.LPME.R; 1989; C.PMT. 1991, 94; D.P.M.T. 1999; A.UMS. 1994, Mampal 2001, BV. 2002, Kerala 2003, 2004)
 (a) Oxaloacetate (b) PEP (c) Pyruvate (d) Acetyl CoA
128. Apparatus to measure rate of respiration and R.Q. is (C.P.M.T. 1991; C.B.S.E. 1992)
 (a) Auxanometer (b) Potometer (c) Respirometer (d) Manometer
129. Terminal cytochrome of respiratory chain which donates electrons to oxygen is (CPMT 1989; CBSE, 1992)
 (a) Cyt b (b) Cyt c (c) Cyt a (d) Cyt a₃
130. R.Q. is maximum when respiratory substrate is (MPPMT. 1992; A.U.M.S. 1992)
 (a) Glucose (b) Fat (c) Protein (d) Malic acid.
131. End product of citric add/Krebs cycle is (CBSE. 1993; Har. P.M.T. 1994)
 (a) Citric acid (b) Lactic acid (c) Pyruvic acid (d) CO₂ + H₂O

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132. Krebs cycle is (AMU. 1993)
(a) Oxidation of glucose to alcohol and water
(b) Oxidation of acetyl CoA to carbon dioxide and water involving electron transport
(c) Complete oxidation of acetyl CoA without electron transport
(d) Complete reduction of acetyl CoA to carbon dioxide and water.
133. Most of the biological energy is supplied by mitochondria through (M.P.PMT.1994, AMU. 1998)
(a) Breaking of proteins (b) Reduction NADP^+
(c) Breaking of sugars (d) Oxidising TCA substrates.
134. Which one is a product of glycolysis, besides 2 ATP ? (CPMT. 1995; M.P.PMT. 1998)
(a) FAD (b) NADH (c) NAD (d) NADP
135. The site of Krebs cycle in bacteria is (Bihar P.M.T. 1995)
(a) Nucleoid (b) Cytoplasm (c) Plasma membrane (d) Ribosomes
136. Which is the product of aerobic respiration? (A.F.M.C 1995)
(a) Malic acid (b) Ethyl alcohol (c) Lactic acid (d) Pyruvic acid
137. Which one can respire in the absence of oxygen ? (R.P.M.T. 1996)
(a) Seeds (b) Leaves (c) Stem (d) Root
138. Lactic acid fermentation does not produce (A.UMS. 1996; Pb. P.M.T. 1997; AMU. 1999)
(a) ATP (b) CO_2 and NADH (c) CO_2 (d) NADH
139. Electron transport system of mitochondria is located in (M.P.PMT. 1997, CPMT. 1999, R.PMT.2000)
(a) Outer membrane (b) Inner membrane (c) Inter-cristal space (d) Outer chamber.
140. In bacteria the site for respiration is (CB.S.E. 1997)
(a) Cytoplasm (b) Mesosome (c) Episome (d) Plasmid
141. Which is wrong about cytochrome P-450 ? (C.B.S.E. 1998)
(a) Contains iron (b) Is a coloured cell
(c) Is an enzyme (d) Plays an important role in metabolism.
142. Production of alcohol by Yeast fermentation is process (Pb. P.M.T. 1998)
(a) Anaerobic (b) Aerobic (c) Light dependent (d) Both A and C.
143. In glycolysis, enzyme enolase produces (AM.U. 1999)
(a) Phosphoglyceric acid (b) Phosphoenol pyruvate
(c) Phosphoglyceraldehyde (d) Pyruvate
144. Oxygen is reduced to water in (Kerala 2000,2006)
(a) Fermentation (b) Calvin cycle
(c) Electron transport (d) Krebs cycle
(e) Glycolysis

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145. Cytochrome is (C.B.S.E. 2001)
(a) Metalloflavoprotein (b) Fe-containing porphyrin pigment
(c) Lipid (d) Glycoprotein
146. Isocitric acid is changed to α -oxalosuccinic acid by (Tamil.Nadu 2001)
(a) Oxidative carboxylation (b) Oxidative decarboxylation
(c) Dehydrogenation (d) Hydrogenation and decarboxylation.
147. In respiration (Manipal 2002)
(a) 2 PGAL are formed in glycolysis and none in Krebs cycle
(b) 6 PGAL in glycolysis, 3 PGAL in Krebs cycle
(c) 8 PGAL in glycolysis, 3 PGAL in Krebs cycle
(d) PGAL formation does not occur in respiration.
148. Glycolysis takes place in (A.F.M.C 2003)
(a) All cells (b) Only eukaryotic cells
(c) Muscle cells (d) Nerve cells
149. Which is rich in energy (CE.T. Chd.2003)
(a) NAD^+ (b) Mitochondria (c) FAD (d) ATP
150. Which one requires oxygen (AMU. 2003)
(a) Fermentation (b) EMP pathway
(c) Pentose phosphate pathway (d) None of the above
151. Mechanism of aerobic respiration was discovered by (A.F.M.C. 2004)
(a) Calvin (b) Krebs (c) Pasteur (d) Hatch and Slack
152. Which of the following is the first step of glycolysis (C.P.M.T. 2004)
(a) Conversion of glucose to fructose (b) Dehydrogenation of glucose
(c) Breakdown of glucose (d) Phosphorylation of glucose
153. How many ATP molecules are released when one molecule of glucose is oxidised in our liver cells (CP.M.t:2'ob5)
(a) 36 (b) 38 (c) 2 (d) 8
154. RQ of anaerobic respiration is (Wardha2005)
(a) < 1 (b) 0 (c) 1 (d) > 1
155. Which one is an important intermediate formed in all types of respiration (Wardha2005)
(a) Acetyl CoA (b) Oxaloacetate (c) Pyruvic acid (d) Tricarboxylic acid
156. What is RQ of the reaction $2\text{C}_{51}\text{H}_{98}\text{O}_6 + 145\text{O}_2 \rightarrow 10_2\text{CO}_2 + 98\text{H}_2\text{O}$. (Manipal 2005)
(a) 0.7 (b) 1.0 (c) 1.45 (d) 1.62
157. Single turn of citric acid cycle yields (Kerala2005)
(a) $2 \text{FADH}_2, 2 \text{NADH}_2, 2 \text{ATP}$ (b) $1 \text{FADH}_2, 2 \text{NADH}_2, 1 \text{ATP}$
(c) $1 \text{FADH}_2, 4 \text{NADH}_2, 1 \text{ATP}$ (d) $1 \text{FADH}_2, 1 \text{NADH}_2, 1 \text{ATP}$
(E) $1 \text{FADH}_2, 1 \text{NADH}_2, 2 \text{ATP}$.

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158. RQ is less than one, if the respiratory substrate is (Manipal 2005)
(a) Organic acids (b) Fats and proteins (c) Sucrose (d) Glucose
159. Enzyme used in conversion of glucose to glucose 6-phosphate is (J.I.P.M.E.R. 2005)
(a) Hexokinase (b) Isomerase
(c) Phosphokinase (d) Phosphohexokinase
160. Identify the compound that links glycolysis and Krebs cycle (Karnataka 2005)
(a) Oxaloacetate (b) Pyruvic acid (c) Lactic acid (d) Acetyl CoA
161. F_0 base of oxysome is towards : (M.H. 2005)
(a) Outer chamber (b) Matrix (c) Inner chamber (d) Both B and C
162. Muscle cells starved of oxygen and supplied with pyruvic acid will produce (M.H. 2005)
(a) Ethanol (b) Lactic acids (c) CO_2 only (d) CO_2 and H_2O
163. Products of anaerobic respiration are (J.I.P.M.E.R. 2005)
(a) Water and alcohol (b) Water and oxygen (c) Alcohol and CO_2 (d) CO_2 and water
164. During which stage in the complete oxidation of glucose are the greatest number of ATP molecules formed from ADP (C.B.S.E. 2005)
(a) Glycolysis (b) Krebs cycle
(c) Conversion of pyruvic acid to acetyl CoA (d) Electron transport chain.
165. How many molecules of $NADH_2$ are produced when four molecules of phosphogyceraldehyde are converted into four molecules of pyruvate (Guj.CET. 2006)
(a) 8 (b) 2 (c) 4 (d) 6
166. The overall goal of glycolysis, Krebs cycle and electron transport system is the formation of (C.B.S.E. 2007)
(a) ATP in one large oxidation reaction (b) Sugars
(c) Nucleic acid (d) ATP in small steps

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ANSWER KEY

1. (b)	2. (c)	3. (c)	4. (b)
5. (a)	6. (c)	7. (a)	8. (d)
9. (a)	10. (a)	11. (c)	12. (a)
13. (d)	14. (b)	15. (b)	16. (a)
17. (d)	18. (d)	19. (a)	20. (c)
21. (a)	22. (b)	23. (a)	24. (b)
25. (b)	26. (b)	27. (b)	28. (b)
29. (c)	30. (b)	31. (d)	32. (b)
33. (a)	34. (c)	35. (b)	36. (c)
37. (d)	38. (b)	39. (c)	40. (a)
41. (a)	42. (b)	43. (a)	44. (b)
45. (a)	46. (b)	47. (c)	48. (a)
49. (b)	50. (b)	51. (b)	52. (a)
53. (b)	54. (b)	55. (b)	56. (a)
57. (a)	58. (b)	59. (b)	60. (c)
61. (a)	62. (b)	63. (a)	64. (a)
65. (c)	66. (b)	67. (a)	68. (d)
69. (a)	70. (b)	71. (d)	72. (c)
73. (a)	74. (a)	75. (b)	76. (b)
77. (c)	78. (b)	79. (c)	80. (a)
81. (b)	82. (a)	83. (a)	84. (b)
85. (a)	86. (b)	87. (a)	88. (b)
89. (d)	90. (b)	91. (a)	92. (c)
93. (b)	94. (b)	95. (b)	96. (b)
97. (a)	98. (c)	99. (b)	100. (a)
101. (b)	102. (a)	103. (b)	104. (a)
105. (b)	106. (d)	107. (a)	108. (d)
109. (d)	110. (c)	111. (c)	112. (c)
113. (a)	114. (c)	115. (d)	116. (c)
117. (c)	118. (d)	119. (a)	120. (b)
121. (d)	122. (c)	123. (d)	124. (a)
125. (a)	126. (b)	127. (d)	128. (c)
129. (d)	130. (d)	131. (d)	132. (c)
133. (d)	134. (b)	135. (c)	136. (a)
137. (a)	138. (b)	139. (b)	140. (b)
141. (b)	142. (a)	143. (b)	144. (c)
145. (b)	146. (b)	147. (a)	148. (a)
149. (d)	150. (d)	151. (b)	152. (d)
153. (b)	154. (b)	155. (c)	156. (a)
157. (c)	158. (b)	159. (a)	160. (d)
161. (a)	162. (b)	163. (c)	164. (d)
165. (c)	166. (d)		

