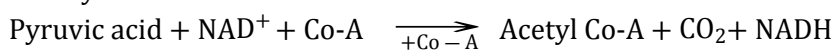


Topic :- Respiration in Plants

- 1 (c)
Complex I of electron transport system (ETS) is NADH dehydrogenase, which oxidase NADH produced in the mitochondrial matrix during citric acid cycle. Complex IV of cytochrome- a_3 and two copper centres.
- 2 (b)
In fermentation, incomplete oxidation of glucose is achieved under anaerobic condition by sets of reactions where pyruvic acid is converted to CO_2 ethanol and sometimes lactic acid
- 3 (a)
The cellular respiration first takes place in the cytoplasm.
- 4 (a)
The scheme of glycolysis was given by Gustav Embden, Otto Mayerhof and J Parnas. It is the only process in respiration for anaerobic organism. It is often referred as the EMP pathway
- 5 (c)
Glycolysis was discovered by Gustav Embden, Otto Mayerhof and J Parnas. To give honour to them the glycolysis pathway is also called EMP pathway by taking initial name of theirs
- 6 (c)
Mitochondria contains various enzymes as follows:
1.Outer Membrane: Acetyl transferase, glycerophosphatase, phospholipase-A, monoamine oxidase, etc.
2.Inner Membrane: Cytochrome oxidase, dehydrogenase, succinate, NADH dehydrogenase, ATPase, etc.
3.Perimitochondrial Space: Adenylate kinase, nucleoside diphosphokinase, etc.
4.Matrix : Pyruvate dehydrogenase, citrate synthase, Aconitase, isocitrate dehydrogenase, fumerase, α -ketogulatrane dehydrogenase, malate dehydrogenase, etc.
- 7 (c)
In eukaryotes, all the reactions of tricarboxylic acid (TCA) cycle or Krebs' cycle takes place in the matrix of mitochondria because all enzymes of this cycle are found in the matrix of mitochondria except Succinic dehydrogenase, which is located in the inner membrane of mitochondria.
In prokaryotes, Krebs' cycle occurs in cytoplasm.
- 8 (c)

- Glyceraldehyde-3-phosphate is required for the oxidative reaction during glycolysis.
- 9 **(b)**
Aerobic respiration occurs in the presence of oxygen that leads to a complete oxidation of organic substances and releases CO₂, water and a large amount of energy. This type of respiration is most common in higher organism
- 10 **(d)**
On administration of glucose orally respiration will take place.
- 11 **(b)**
30 ATP molecules could be generated from 686 kcal energy.
- 12 **(a)**
NADPH is formed during light reaction of photosynthesis and also formed during hexose monophosphate shunt (HMP shunt) of glucose oxidation.
- 13 **(c)**
Plants can get along without respiratory organ because plant part takes care of its own gas exchange needs and less demand for gas exchange. Because only during photosynthesis are large volumes of gases exchanges and each leaf is well adapted to take care of its own needs, during these period
- 15 **(a)**
During the oxidation process (occurs in inner mitochondrial membrane during electron transport system) enormous amount of free energy is released, some of which is utilized by inner membrane sub units of F₁ particles containing three coupling factors and ATPase enzyme, in the synthesis of ATP molecules.
- 16 **(b)**
Pyruvate which is formed by the glycolytic catabolism of carbohydrate undergoes oxidative decarboxylation by a complex set of reactions catalysed by pyruvate dehydrogenase
- 17 **(b)**
The intermediate compound which link glycolysis with Krebs' cycle is acetyl Co-A.
- 18 **(c)**
All the enzymes of Krebs' cycle, fatty acid synthesis and amino acid synthesis are found in matrix but **Succinic dehydrogenase** and **cytochrome oxidase** are present on inner membrane of mitochondria.
- 19 **(d)**
Enolase works on 2-phosphoglyceric acid (3C-compound), Aconitase on citric acid (6C-compound). Fumerase on Fumaric acid (4C-compound) and alcohol dehydrogenase on acetaldehyde (2C-compound). Thus, increasing order of these enzymes based on the carbon number of the substrates on which they act is - IV, I, III, II.
- 20 **(b)**
Pyruvic acid synthesized in glycolysis must enter inside the mitochondria, where oxidative Decarboxylation occurs in presence of NAD⁺, pyruvic acid Dehydrogenase complex and coenzyme-A.



ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	C	B	A	A	C	C	C	C	B	D
Q.	11	12	13	14	15	16	17	18	19	20
A.	B	A	C	A	A	B	B	C	D	B

PE