Respiration

1. **Arrange the following compounds in the increasing order of their energies ( )**

   A. ATP B. Acetyl Co-A C. Malic acid D. Pyruvic acid E.GAP

   1. A—B—D—E—C 2. D—E –B—C—A

   3. E—D—B—C—A 4. A—C—B—D—E

2. **Complex IV in inner mitochondrial membrane is ( )**

   1. Succinic dehydrogenase 2. Cytochrome C oxidase

   3. ATP synthase 4. Cytochrome C reductase

3. **Total number of ATP released in the formation of ethyl alcohol from glucose ( )**

   1. 2 2. 7 3. 4 4. 6

4. **Ultimate acceptor of electrons and protons in aerobic respiration is ( )**

   1. $NADPH_2$ 2.$NADH_2$ 3.H_2O 4.O_2

5. **Enzymes participating in both respiration and photosynthesis ( )**

   A. Aldolase B. Triose phosphate isomerase

   C. Glyceraldehyde phosphate dehydrogenase D.Transketolase

   1. A & B 2. B & C 3. A, B & C 4. A ,B, C & D

6. **Number of ATP released in substrate level phosphorylation in anaerobic respiration ( )**

   1. 2 2. 4 3. 3 4. 6

7. **R.Q values of protein is ( )**

   1. Less than 0.4 2. More than one 3. Between 0.8—0.9 4. Equal to one

8. **Connecting link of glycolysis and citric acid cycle is ( )**

   1. Pyruvic acid 2. Phosphoenol pyruvic acid

   3. Acetyl Co-A 4. Citric acid

9. **During respiration pH decreases in ( )**

   1. Cytosol 2. Matrix of mitochondria

   3. Perimitochondrial space 4. In the membrane

10. Assertion (A): All bacteria are anaerobic ( )

Reason (R): Mitochondria responsible for aerobic respiration are absent in prokaryotes

1. Both A & R are true R is the correct explanation of A
2. Both A & R are true R is not the correct explanation of A
3. A is true but R is wrong
4. A is wrong but R is true.

11. True statement regarding glycolysis is ( )

A. No oxygen is used in this process

B. Glucose does not undergo oxidation

C. Glucose is phosphorylated

D. DHAP cannot participate in substrate level phosphorylation

1. A & B 2. A & C 3. C & D 4. A,C & D

12. The first formed substance in Kreb's cycle is ( )

1. OAA 2. Citric acid 3. Acetyl Co-A 4. Pyruvic acid

13. The co factor that does not participate in the formation of acetyl Co-A is ( )

1. NAD^+ 2. Co-A 3. NADPH 4. Mg^+

14. Aconitase enzyme participates in ( )

1. Dehydration 2. Both dehydration and hydration

3. Cleavage and dehydration 4. Oxidation and hydration

15. False statement regarding citric acid cycle ( )

A. All enzymes of citric acid cycle are present in matrix of mitochondria

B. Oxygen is reduced to water

C. After complete oxidation of glucose six CO_2 are released here.

D. This pathway involved both in catabolism and anabolism.

1. A & B 2. B & C 3. A,B & C 4. A,B,C & D

16. α ketoglutaric acid after oxidation releases ( )

1. CO_2 and $NADH_2$ 2. CO_2 and Co-A

3. $FADH_2$ and Co-A 4. CO_2 and $FADH_2$

17. Glucose, a six carbon compound releases 6 CO_2 after complete oxidation.

α ketoglutaric acid, a 5 carbon compound releases ( )

1. One CO_2 2. Five CO_2 3. Three CO_2 4. Four CO_2

18. Assertion (A): Citric acid cycle is amphibolic pathway ( )

Reason (R): In this, both oxidation and reduction reactions takes place

1.Both A & R are true R is the correct explanation of A

2. Both A & R are true R is not the correct explanation of A

3.A is true but R is wrong

4. A is wrong but R is true.

19. Match the following ( )

	List I		**List II**
A	Fumarase	I	Survives only on glycolysis
B	F_1 particle	II	Affinity for molecular oxygen
C	*Clostridium*	III	Water as substrate
D	Complex IV	IV	Membrane bound complex
		V	Smallest rotator y machine

	A	B	C	D		A	B	C	D
1.	IV	III	II	I	2.	III	IV	I	II
3.	II	V	III	IV	4.	II	III	IV	V

20. If Glycerol has to be respired, it enters the respiratory cycle as ( )

1. Acetyle- Co-A 2. Pyruvic acid 3. DHAP 4. GAP

21. Number of ATP released when all the electron carriers formed in the cytosol and mitochondria entered the electron transport ( )

1. 30 2. 32 3. 40 4. 28

22. True statement regarding R.Q values ( )

A. It is an index of nature of respiratory substrate

B. It is the ratio of O_2 released to that of CO_2 utilized

C. R.Q values of organic acids are always more than one

D. It is also an index of amount of respiratory substrate

1. A & B 2. B & C 3. C & D 4. A & C

23. In aerobic bacteria net gain of ATP ( )

1. 38 2. 36 3. 40 4. 2

24. Function of ubiquinone in electron transport ( )

1. It receives two electrons at a time 2. It can transfer one electron at a time

3. It contains iron and sulfur centre's 4. It is immobile membrane protein

25. For the formation one molecule of respiratory water number of protons accumulating in inter membrane space are ( )

1. 6 2. 8 3. 10 4. Cannot say

26. $NADH_2$ formed in cytosol when enters electron transport the number of ATP molecules formed are ( )

1. Three 2. One 3. Two 4. Nil

27. False statement regarding Complex II ( )

1. Has Fe-S protein 2. It can transfer electrons to ubiquinone

3. It can translocate protons 4. It is part of the Kreb's cycle enzyme pool

28. In fermentation reactions enzyme participating in reduction of the substrate is ( )

1. Alcohol dehydrogenase 2. GAP dehydrogenase

3. Pyruvic decorboxylase 4. Malic dehydrogenase

29. True statement regarding respiration in plants ( )

A. Rate of respiration in all tissues is same

B. Tissues showing high respiratory rates show more mitochondria

C. Tate of respiration is very high in cold conditions

D. Rate of respiration decreases during ion transport

1. Only B 2. Only A 3. A & C 4. B, C & D

30. Assertion (A): R.Q value for fats is always less than one ( )

Reason (R): Fat respiration involves more use of water

1. Both A & R are true R is the correct explanation of A

2. Both A & R are true R is not the correct explanation of A

3. A is true but R is wrong

4. A is wrong but R is true.

31. For the complete oxidation of 6 glucose molecules the number of Kreb's cycles required are ( )

1. One 2. Twelve 3. Six 4. Many

32. In oxygen intolerant bacteria the end product of respiration is ( )

1. Pyruvic acid 2. Ethyl alcohol 3. 2 ATP 4.2 ATP & NADH

33. Match the following ( )

	List I		List II
A	Complex I	I	Succinate ubiquinone oxydoreductase
B	Complex II	II	Cytochrome 'C' reductase
C	Complex III	III	NADH-ubiquinone oxydoreductase
D	Complex IV	IV	ATP synthase
		V	Cytochrome 'C' oxydase

	A	B	C	D		A	B	C	D
1.	III	I	II	V	2.	III	II	I	IV
3.	III	V	II	I	4.	I	III	IV	V

34. ATP formation during respiration takes place in ( )

1. Matrix of mitochondria 2. Matrix of mitochondria and cytosol

3. In the inter membrane space 4. Cytosol and inter membrane space

35. Proteins involving in translocation of protons across the membrane resulting in creation of proton motive force is ( )

1. Ubiquinone
2. Complex I and ubiquinone
3. Ubiquinone, complex I and complex IV
4. Ubiquinone, complex I , complex IV and complex V

36. $FADH_2$ when enters electron transport number of protons translocates across the membrane are ( )

1. 6 2. 10 3. 8 4. 3

37. Disruption of ATP synthase affects ( )

A. Water formation B. ATP synthesis

C. Proton gradient D. Electron transport

1. A & B 2. B & C 3. C & D 4. A & D

38. When fumaric acid is introduced into Kreb's cycle ( )

1. One molecule of water is utilized and one molecule of $NADH_2$ is released
2. One $FADH_2$ and one $NADH_2$ is released
3. One $NADH_2$ is released
4. One molecule of H_2O and one molecule of $NADH_2$ are released

39. Assertion (A): Citric acid cycle shows both tricarboxylic and dicarboxylic acids

Reason (R): Tricarboxylic acids loose CO_2 ( )

1. Both A & R are true R is the correct explanation of A
2. Both A & R are true R is not the correct explanation of A
3. A is true but R is wrong
4. A is wrong but R is true.

40. Proteins enter respiratory chain as ( )

1. GAP 2. DHAP 3. PEP 4. Acetyle Co-A

Respiration--Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4	2	3	4	3	2	3	3	3	4	4	2	3	2	3	1	1	3	2	4
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	4	1	2	3	3	3	1	1	2	2	2	1	2	3	1	2	1	1	4