

MCQ respiration

1- A high energy phosphate bond amongst the following is:

- a) Glucose 1- phosphate.
- b) Glucose 6- phosphate.
- c) 1, 3 biphosphoglycerate.
- d) all of the above .

2- Electron transport chain occurs in:

- a) Outer mitochondria membrane.
- b) Inner mitochondrial membrane.
- c) Mitochondrial matrix.
- d) Cytoplasm.

3- Cyanide inhibits electron transport chain at:

- a) Complex I.
- b) Complex II.
- c) Complex III.
- d) Complex IV.

4- Which of the following is used for treatment of obesity?:

- a) 2, 4 dinitrophenol.
- b) Large doses of thyroxine.
- c) Calcium.
- d) Carbon monoxide.

5- A high energy phosphate bond amongst the following is:

- a) Glucose 1- phosphate.
- b) Glucose 6- phosphate.
- c) Creatine phosphate.
- d) all of the above .

6- Which of the following is not uncoupler ?

- a) 2, 4 dinitrophenol.
- b) Calcium.
- c) Large doses of thyroxine.
- d) Cyanide.

7- Which of the following component of electron transport chain is lipophilic?

- a) Complex I.
- b) Complex II.
- ☒ c) Coenzyme Q.
- d) Complex IV.

8- A chemiosmotic theory explains synthesis of:

- ☒ a) ATP.
- b) GTP.
- c) ADP.
- d) UTP.

9- The mobile component of electron transport chain is:

- a) Complex I.
- b) Cytochrome a.
- ☒ c) Co enzyme Q.
- d) Cytochrome a 3.

10- Antimycin inhibits electron transport chain at:

- a) complex I.
- b) Complex II.
- ☒ c) Complex III.
- d) Complex IV.

11- The end product of electron transport chain is:

- ☒ a) $H_2O + ATP$.
- b) $H_2O_2 + ATP$.
- c) $H_2O + GTP$.
- d) $H_2O + ADP$.

12- Cytoplasmic NADH is oxidized through ETC by:

- a) Malate-aspartate shuttle.
- b) Glycerol 3- phosphate shuttle.
- ☒ c) Both of the above.
- d) Neither of the above.

13-Which of the following component of ETC contains copper:

a)cytochrome c .

b)cytochrome b.

☒ c)cytochrome a,a3.

d)Co enzyme Q .

14-The mobile parts of ETC are:

a) cytochrome c1.

b)cytochrome a .

☒ c) Coenzyme Q and cytochrome c.

d) complex I .

15-Which of the following is not substrate to ETC:

a)NADH .

b)FADH2 .

☒ c)NADPH.

d) None of the above.

16-The following is not a component of the electron transport chain:

a)Cytochrome b.

b)Cytochrome c .

☒ c) Cytochrome P450.

d) Iron sulfur.

17-The following component carries electrons from complex III to

complex IV :

a)Coenzyme Q.

☒ b)Cytochrome c.

c)Cytochrome b.

d)Cytochrome a3.

18-All of the followings act as proton pump EXCEPT:

a)Complex I.

☒ b)Complex II.

c) Complex III.

d) Complex IV.

19-ATP synthase is a component of:

a)Complex I.

☒ b)Complex V.

c) Complex III.

d)Complex IV.

20-Uncouplers:

- a) Allow oxidation to occur but prevent ATP formation.
- b) Inhibit both oxidation and phosphorylation.
- c) Inhibit oxidation and allow phosphorylation.
- d) None of the above.

21) Arrange the following electron acceptors in the proper order in which they participate in electron transport.

1. Cytochrome c 2. Oxygen 3. Cytochrome oxidase

a) 1, 2, 3 ✓

b) 1, 3, 2

c) 3, 1, 2

d) 2, 1, 3 ✗

22. The movement of protons through ATP synthase occurs from the:

- a) Matrix to the intermembrane space.
- b) Matrix to the cytoplasm.
- c) Intermembrane space to the matrix. ✓
- d) Intermembrane space to the cytoplasm.

23. A patient poisoned by which of the following compound has the most highly reduced state of most of the respiratory chain carriers:

- a) Antimycin.
- b) Rotenone .
- c) Carbon monoxide. ✓
- d) Chloramphenicol.

24. Which of the following is important in transferring energy from the glycolytic pathway to the TCA cycle?

- a) $\text{NADH} + \text{H}^+$.
- b) FADH_2 .
- c) Citrate.
- d) Acetyl CoA.

25. CO_2 is not produced in the reaction catalyzed by the enzyme:

- a) Pyruvate dehydrogenase.
- b) Succinate dehydrogenase.
- c) Isocitrate dehydrogenase.
- d) α -ketoglutarate dehydrogenase.

26. How many ATP molecules are produced on complete oxidation of acetyl CoA in the citric acid cycle

- a) Six.
- b) Three.
- c) Twelve.
- d) Fifteen.

27. The following cofactor is not associated with pyruvate dehydrogenase:

- a) NAD.
- b) FAD.
- c) Lipoic acid.
- d) Biotin.

(28) The following enzyme participates in substrate level phosphorylation:

- a) Isocitrate dehydrogenase.
- b) Malate dehydrogenase .
- c) Aconitase .
- ☒ d) Succinate thiokinase.

29. Thiamine is important for conversion of:

- ☒ a) Pyruvate to acetyl CoA.
- b) α - ketoglutarate to succinyl CoA.
- ☒ c) all of the above .
- d) None of the above.

30. All of the following are intermediates of citric acid cycle EXCEPT:

- a) isocitrate. ✓
 - b) malate .
 - c) oxaloacetate. ✓
 - ☒ d) pyruvate.
- (31) Tricarboxylic acid cycle to be continuous requires the regeneration of
- a) Pyruvic acid.
 - ☒ b) oxaloacetic acid.
 - c) α -oxoglutaric acid.
 - d) Malic acid.
 - e) Glutaric acid.

32. Dehydrogenation of succinic acid to fumaric acid requires the following hydrogen carrier:

- ☒ a) NAD^+ .
- b) NADP^+ .
- c) FAD.
- d) Glutathione.
- e) PLP.

33. Endogenous sources of free radicals include:

- a) Mitochondrial respiratory chain.
- b) Xanthine oxidase enzyme.
- c) During methemoglobin formation.
- ☒ d) All of the above.

34. Which of the following is an antioxidant enzyme?

- a) Glutathione peroxidase.
- b) Superoxide dismutase.
- ☒ c) Both of the above.
- d) None of the above.

35. Cytosolic superoxide dismutase enzyme contains:

- ☒ a) Cu and Zn.
- b) Cu and Mn.
- c) Zn and Mn.
- d) None of the above.

36. Which of the following is naturally occurring antioxidant?

☒ a) Vitamin E.

b) Vitamin B 1.

c) Vitamin B 2.

d) Biotin.

37. All of the following increase free radicals formation EXCEPT

a) Oxidative stress.

b) Irradiation. ✓

c) Environmental pollution. ✓

☒ d) β carotenes and lipoic acid.

38. Which vitamin is a major lipid-soluble antioxidant in cell membranes?

a) Vitamin A.

b) Vitamin D.

☒ c) Vitamin E.

d) Vitamin K.

A D C ✓

39. Which of the following best explains the antioxidant action of vitamin E?

- a) It forms a stable radical that can be reduced back to active vitamin E by reaction with vitamin C.
- b) It is a radical, so when it reacts with another radical a non-radical product is formed.
- c) It is converted to a stable radical by reaction with vitamin C.
- d) It is lipid soluble and can react with free radicals in the bloodstream resulting from nitric oxide formation by vascular epithelium.
- e) It forms a stable radical that can be reduced back to active vitamin E by reaction with glutathione and glutathione peroxidase.

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

7-Biochemistry:

1) proteins forms about of the pulmonary surfactant

- a) 10%
- b) 20%
- c) 85%
- d) 90%

2) the lung surfactant is one of the innate immunity of the lung

- a) true
- b) false

3) phosphatidylcholine is present in the form of

- a) palmitoylphosphatidylcholine
- b) dipalmitoylphosphatidylcholine
- c) tripalmitoylphosphatidylcholine

4) phosphatidylcholine is the most abundant surfactant phospholipid in the lung surfactant

- a) true
- b) false

5) surfactant protein

- a) act as immune mediator
- b) lower the surface tension of the lung

c) A and B

6) which of the following surfactant protein mediate the host defense function of the pulmonary surfactant

- a) SP-A & SP-B
- b) SP-A & SP-D
- c) SP-B & SP-C
- d) SP-C & SP-D

7) all of the following are biophysical properties of surfactant except

- a) prevents pulmonary edema
- b) prevents alveolar collapse
- c) prevents the mucociliary function
- d) facilitate the lung expansion during inspiration

8) SP-B regulate phagocytosis and chemotaxis

- a) true
- b) false

7-Biochemistry answers:

5- C

6- B

7- C

8- B

1- A

2- A

3- B

4- A