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Department of Chemistry &
B.Sc. II Biochemistry
Paper- II (Nutrition and Metabolism)
Question Bank

Q. 1) Select correct answer from the given alternative.

1. The electron transport chain is located in

- i) Cytosol
- ii) Inner mitochondrial membrane
- ii) outer mitochondrial membrane.
- lii) Thylakoi

2. ATP synthase activity is associated with the mitochondrial enzyme complex.....

- i) V
- ii) III
- iii) Iv
- iv) I

3. One of the following enzymes in glycolysis catalyses an irreversible reaction is.....

- i) Hexokinase
- ii) phosphofructokinase
- iii Pyruvate kinase
- iv) All of above

4. The number of ATP produced when a molecule of actual COA is oxidized through citric acid cycle.....

- i) 12
- ii) 24
- iii) 38
- iv) 15

5. The two final product in the B oxidation of chain acids are.....
- i) Acetyl COA and fatty acyl -COA ii) Acetyl COA and acetyl COA
 iii) Acetyl COA and Propionyl COA iv) Acetyl COA and succinyl COA
6. The total number of ATP produced by the oxidation of a molecule of palmitic acid is
- i) 130 ATP ii) 129 ATP
 iii) 100 ATP iv) 135 ATP
7. Acetyl COA from the mitochondria is transported in to the cytosol after its conversion to
- i) Oxaloactate ii) cilrate
 ii) Malonate. iv) pyruvate
8. The enzyme amino acid decarboxylase which require As coenzyme
- i)Coenzyme A ii) thiamine pyrophosphate
 iii)FMN iv) py-po4
9. B-oxidation and Biosynthesis of lipids taken place in and
- i) Cytoplasm and mitochondria ii) Mitochondria and chloroplast
 iii) Mitochondria and cytoplasm. iv) Cytoplasm and chloroplast
- 10.....the coenzyme of vitamin BY, is mostly associated with amino acid metabolism.
- i) Niacin ii) Thiamine
 iii)Riboflavin iv) Pyridoxamine phosphate (PLP)
- 11.Vitamin B1 is
- i) Thiamine ii) Riboflavin
 iii) Niacin iv) Pyridoxine

12. The coenzyme of riboflavin and Take part in a variety of oxidation – reduction reaction.

i) FAD & FMN

ii) NAD + and NADP +

iii) Pyro4.

iv) TPP

13. The degradative processes concerned with the breakdown of complex molecules to simpler ones, with a concomitant release of energy is called as

i) Anabolism.

ii) catabolism

iii) Synthesis.

iv) Amphibolism

14. The synthesis of glucose from non-carbohydrate compounds is known as.....

i) Gluconeogenesis

ii) TCA cycle

iii) Glycolysis

iv) Glycogenesis

15. The biosynthetic reactions involving the formation of complex molecules from simple precursors is called

i) Anabolism

ii) Synthesis

iii) Catabolism

iv) Amphibolism

16. Deficiency of vitamin B1 (thiamine) is.....

i) Beri-beri

ii) Pellagra

iii) Cheilosis

iv) peripheral neuropathy

17. The connecting link between HMP shunt and lipid synthesis is

- i) Ribose
- ii) NADPH
- iii) sedoheptulose – 7- phosphate
- iv) NADH

18. The synthesis of urea occurs in.....

- i) Kidney
- ii) liver
- iii) Musle
- iv) Brain

19. Phenylketonuria , due to a defect in the enzyme

- i) Homogentisate oxidase
- ii) tyrosinase
- iii) phenylalanine
- iv) Branched chain € -keto acid dehydrogenase

20. Deficiency of vitamin C (ascorbic acid) causes.....

- i) Scurvy
- ii) Pellagra
- iii) Beri-Beri
- iv) Cheilosis

21. Electron transport chain (ETC) is blocked by inhibitors such as.....

- i) Rotenone
- ii) Cyanide
- iii) Antimycin
- iv) All of the above

22. Which complex synthesises ATP in ETC.....

- i) V
- ii) I
- iii) III
- iv) II

23. The removal of amino group from the amino acids as NH_3 is

- i) Decarboxylation
- ii) Deamination
- iii) Transamination
- iv) None of these

24. Transamination reaction requires Coenzyme derived from vitamin B₆.

- i) Thiamine Pyrophosphate
- ii) PyP₄
- iii) Niacin
- iv) Coenzyme A

25. The transfer of an amino (-NH₂) group from an amino acid to a keto acid is known as

- i) Transamination
- ii) Deamination
- iii) Decarboxylation
- iv) None of these

26. In the HMP shunt , generates 2 important products are.....

- i) Hexoses and pentoses
- ii) Hexoses and NADPH
- iii) NADPH and NAD
- iv) Pentoses and NADPH

27. Citric acid cycle essentially involves the oxidation of acetyl COA to CO₂.....

- i) CO₂ and H₂O
- ii) CO₃ and NH₃
- iii) NH₃ and H₂O
- iv) All of these

28. The enzymes of TCA cycle are located in.....

- i) Mitochondrial matrix
- ii) Ribosomes
- iii) Cytosol
- iv) Chloroplast

29. The oxidation of glucose to pyruvate and lactate is

- i) Glycogenesis
- ii) Glycolysis
- iii) Glycogenolysis
- iv) Citric acid cycle

30. Organism remove -COOH group as CO_2 from the amino acids in the reaction called

.....

i) Decarboxylation

ii) Carboxylation

iii) Deamination

iv) Transamination

Q.2) Brief Questions:

- 1) Describe in detail ATP as high energy compound.
- 2) Describe in detail in steps involved in glycolysis.
- 3) Describe in detail steps involved in TCA cycle.
- 4) Rewrite the steps involved in β -oxidation of fatty acid.
- 5) Rewrite the steps involved in biosynthesis of fatty acid.
- 6) Describe in detail transamination reaction.
- 7)) Describe in detail decarboxylation reaction.

Q.3) Short notes:

- 1) inhibitors of ETC
- 2) Thiamine
- 3) Riboflavin
- 4) PDH complex
- 5) glycogenesis
- 6) glycogenolysis
- 7) fatty acid synthetase complex
- 8) deamination
- 9) phenylketonuria

