M.Sc. Fourth Semester

Paper: Biochemistry

1. A Holoenzyme is:

(A) Functional unit (B) Apo enzyme

(C) Coenzyme (D) All of these

Answer: D

2. An example of ligases is

(A) Succinate thiokinase (B) Alanine racemase

(C) Fumarase (D) Aldolase

Answer: A

3. Fischer's 'lock and key' model of the enzyme action implies that:

(A) The active site is complementary in shape to that of substance only after interaction.

(B) The active site is complementary in shape to that of substance

(C) Substrates change conformation prior to active site interaction

(D) The active site is flexible and adjusts to substrate

Answer: B

4. In enzyme kinetics K_m implies

(A) The substrate concentration that gives one half V_{max}

(B) The dissociation constant for the enzyme substrate complex

(C) Concentration of enzyme

(D) Half of the substrate concentration required to achieve V_{max}

Answer: A

5. In competitive enzyme activity inhibition

(A) Apparent K_m is decreased

(B) Apparent K_m is increased

(C) V_{max} is increased

(D) V_{max} is decreased

Answer: A

6. Coenzymes are

(A) Heat stable, dialyzable, non protein organic molecules

(B) Soluble, colloidal, protein molecules

(C) Structural analogue of enzymes

(D) Different forms of enzymes

Answer: A

7. In enzyme kinetics V_{max} reflects

(A) The amount of an active enzyme

(B) Substrate concentration

(C) Half the substrate concentration

(D) Enzyme substrate complex

Answer: A

8. Enzymes leading to the high energy phosphorylation of substrates during glycolysis include which of the following?

(A) Phosphoglycerate kinase

(B) Enolase

(C) Pyruvate Kinase

(D) Glyceraldehyde-3-phosphate dehydrogenase

Answer: D

9. During glycolysis, Fructose 1, 6 diphosphate is decomposed by the enzyme:

(A) Enolasea

(B) Fructokinase

(C) Aldolase

(D) Diphosphofructophosphatose

Answer: C

10. An enzyme involved in gluconeogenesis is

(A) Pyruvate kinase

(B) Pyruvate carboxylase

(C) Hexokinase

(D) Phosphohexose isomerase

Answer: B

11. The process of breakdown of glycogen to glucose in the liver and pyruvate and lacate in the muscle is known as

(A) Glyogenesis (B) Glycogenolysis

(C) Gluconeogenesis (D) Cellular degradation

Answer: B

12. The conversion of alanine to glucose is termed

(A) Glycolysis

(B) Oxidative decarboxylation

(C) Specific dynamic action

(D) Gluconeogenesis

Answer: D

13. The following is an enzyme required for glycolysis:

(A) Pyruvate kinase

(B) Pyruvate carboxylase

(C) Glucose-6-phosphatase

(D) Glycerokinase

Answer: A

14. In TCA cycle, oxalosuccinate is converted to α-ketoglutarate by the enzyme:

(A) Fumarase

(B) Isocitrate dehydrogenase

(C) Aconitase

(D) Succinase

Answer: B

15. A compound serving a link between citric acid cycle and urea cycle is

(A) Malate (B) Citrate

(C) Succinate (D) Fumarate

Answer: D

16. An amino acid not involved in urea cycle is

(A) Arginine (B) Histidine

(C) Ornithine (D) Citrulline

Answer: B

17. The metabolite which sustains urea cycle is

(A) Ornithine

(B) Citrulline

(C) Carbamoyl phosphate

(D) n-acetyl glutamate

Answer: C

18. Control of urea cycle involves the enzyme:

(A) Carbamoyl phosphate synthetase

(B) Ornithine transcarbamoylase

(C) Argininosuccinase

(D) Arginase

Answer: A

19. Products of urea cycle are

A) One molecule of urea, one molecule of ammonia, one molecule of ATP and one molecule of fumaric acid

B) One molecule of urea, one molecule of AMP, two molecule of ADP and one molecule of fumaric acid

C) One molecule of aspartic acid, one molecule of ammonia, one molecule of ATP and one molecule of fumaric acid

D) Two molecules of urea, two molecules of ammonia, one molecule of ATP and one molecule of fumaric acid

Answer: B

20. The cholesterol molecule is

(A) Benzene derivative

(B) Quinoline derivative

(C) Steroid

(D) Straight chain acid

Answer: C

21. In β−oxidation of fatty acids which of the following are utilized as co-enzymes?

(A) NAD^+ and $NADP^+$

(B) FAD H_2 and $NADH + H^+$

(C) FAD and FMN

(D) FAD and NAD^+

Answer: D

22. The major determinant of the overall rate of denovo purine nucleotide biosynthesis is the concentration of

(A) 5-phosphoribosyl 1-pyrophosphate

(B) 5-phospho β-D-ribosylamine

(C) Glycinamide ribosyl-5-phosphate

(D) Formylglycinamide ribosyl-5-phosphate

Answer: A

23. Pyrimidine biosynthesis begins with the formation from glutamine, ATP and CO_2, of

(A) Carbamoyl aspartate

(B) Orotate

(C) Carbamoyl phosphate

(D) Dihydroorotate

Answer: C

24. A substrate for enzymes of pyrimidine nucleotide biosynthesis is

(A) Allopurinol (B) Tetracylin

(C) Chloramphenicol (D) Puromycin

Answer: A

25. In humans end product of purine cata bolism is

(A) Uric acid (B) Urea

(C) Allantoin (D) Xanthine

Answer: A

26. The enzyme required for salvage of free purine bases is

(A) Adenine phosphoribosyl transferase

(B) Hypoxanthine guanine phosphoribosyltransferase

(C) Both (A) and (B)

(D) None of these

Answer: C

27. The enzyme common to catabolism of all the purines is

(A) Adenosine deaminase

(B) Purine nucleoside phosphorylase

(C) Guanase

(D) None of these

Answer: B

28. An enzyme common to de novo synthesis of pyrimidine nucleotides and urea is

(A) Urease

(B) Carbamoyl phosphate synthetase

(C) Aspartate transcarbamoylase

(D) Argininosuccinase

Answer: B

29. During de novo synthesis of pyrimidine nucleotides, the first ring compound to be formed is

(A) Carbamoyl aspartic acid

(B) Dihydro-orotic acid

(C) Orotic acid

(D) Orotidine monophosphate

Answer: B

30. De novo synthesis of pyrimidine nucleotides is regulated by

(A) Carbamoyl phosphate synthetase

(B) Aspartate transcarbamoylase

(C) Both (A) and (B)

(D) None of these

Answer: C