

Duration: 3 Hrs

Total marks: 75

- N.B. : 1. All questions are compulsory
2. Figures to right indicate full marks

Q. 1 Choose appropriate option for following multiple choice based questions. 20

1 The example of essential fatty acid is _____.

- a Linolenic acid
- b Palmitic acid
- c Stearic acid
- d Oleic acid

2 The amino acid containing indole group is _____.

- a Leucine
- b Tryptophan
- c Histidine
- d Lysine

3 The process of change in optical rotation from dextrorotatory (+) to levorotatory (-) is referred to as

- a Mutarotation
- b Epimerization
- c Racemization
- d Inversion

4 _____ is the regulatory enzyme in glycolysis.

- a Phosphofructokinase
- b Enolase
- c glucose-1,6 bisphosphatase
- d aldolase

5 The reaction catalyzed by pyruvate dehydrogenase complex involves _____.

- a Oxidative Phosphorylation
- b Oxidative decarboxylation
- c Oxidative carboxylation
- d Oxidative dephosphorylation

6 Intermediate that is common in glycolysis, glycogenesis and glycogenolysis:

- a Glucose 1,6 bisphosphate
- b Glucose-1 phosphate
- c Glucose-6 phosphate
- d Fructose 1,6 bisphosphate



- 7 NADPH is produced by _____.
- a Krebs cycle
 - b Anaerobic glycolysis
 - c Uronic acid pathway
 - d Hexose monophosphate pathway
- 8 _____ is liberated when Citrate converted to Cis Aconitate.
- a water
 - b hydrogen
 - c hydrogen peroxide
 - d carbon dioxide
- 9 _____ separates the two strands of DNA during replication.
- a Gyrase
 - b Helicase
 - c Topoisomerase
 - d DNA polymerase
- 10 _____ is a termination codon.
- a UAG
 - b UUA
 - c UUG
 - d AUA
- 11 Transcription of _____ strand of DNA results in mRNA formation.
- a Template
 - b Anti-template
 - c Coding
 - d Transcript
- 12 Carbamoyl phosphate synthetase II is inhibited by _____.
- a ATP
 - b PRPP
 - c GTP
 - d Biotin
- 13 _____ is the end product of purine metabolism, that has been implicated in the gout disorder.
- a Uric acid
 - b Urea
 - c Hypoxanthine
 - d Carbon dioxide



- 14 _____ is the cofactor involved in regulating step of fatty acid synthesis.
- a Biotin
 - b Pyridoxal phosphate
 - c Ascorbate
 - d Aspartate
- 15 Conversion of acetoacetyl CoA to acetyl CoA is catalyzed by _____.
- a Thiolase
 - b hydratase
 - c enolhydratase
 - d Hydrolase
- 16 Hydration step in β -oxidation of fatty acids is catalyzed by _____.
- a Enoyl CoA hydratase
 - b Acyl CoA hydratase
 - c Succinyl CoA hydratase
 - d Enoyl CoA hydrolase
- 17 Bile acids are synthesized from _____.
- a Fatty acids
 - b Cholesterol
 - c Bilirubin
 - d Proteins
- 18 Urea cycle occurs in
- a cytoplasm
 - b endoplasmic reticulum
 - c ribosomes
 - d mitochondria
- 19 The relative affinities of the substrate and inhibitor with the enzyme determines the degree of _____ inhibition.
- a Competitive
 - b Non-competitive
 - c Uncompetitive
 - d Suicide
- 20 Aldolase enzyme belongs to _____ class according to IUB.
- a Oxidoreductase
 - b Transferase
 - c Hydrolase
 - d Lyase



- Q. 2 Answer any two questions** 20
- a i) Describe the three rate limiting steps for reversal of glycolysis with respect to gluconeogenesis. 3
ii) Outline Pentose phosphate pathway and state its importance. 3
iii) Explain glycogenesis with respect to names of the intermediates, enzymes and cofactors. 4
- b i) Discuss the synthesis of AMP and GMP from IMP with respect to name and structures of intermediates and enzymes involved. 5
ii) Explain the steps involved in prokaryotic replication in brief. 5
iii) Name the disorders of purine metabolism and give one example of xanthine oxidase inhibitor. 5
- c i) Discuss enzyme inhibition with respect to Michealis plot along with suitable examples. 5
ii) Explain secondary structure of protein. Draw the structure of lecithin. 5
- Q. 3** 35
- i Draw the structure of Sucrose and Palmitic acid. Explain the term anomer with suitable examples.
- ii Write a note on phospholipid with respect to classification with structures.
- iii Give the names and structures of substrate and product for the following enzyme catalysed reactions : a) Pyruvate kinase b) HMG CoA synthase
- iv Discuss the steps involved in β -oxidation of saturated fatty acid.
- v Explain Urea cycle and give its physiological importance.
- vi Give the reactions catalysed by FAS complex in the biosynthesis of fatty acid.
- vii Discuss deamination and decarboxylation reactions involved in amino acid metabolism.
- viii Outline the steps involved in prokaryotic translation.
- ix Classify enzymes based on the IUB system with suitable examples.

