2 ACH
21/10/24
biochem

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 functional unit of the enzyme is known as_____.
a Prosthetic group
b Holoenzyme
c Chiroenzyme
d Monomeric enzyme

2 In TCA cycle, _____ combines with acetyl CoA in the first step.
a Oxaloacetate
b Oxalosuccinate
c Fumarate
d Citrate

3 Which of these contributes the nitrogen atom for the formation of urea in urea cycle?
a aspartate
b glutamate
c Glycine
d asparagine

4 Example of xanthine oxidase inhibitor is_____.
a Allopurinol
b Methothrexate
c Trimethoprim
d Puromycin

5 _____ is an enzyme of purine salvage pathway and its defect causes Lesch-Nyhan syndrome.
a Xanthine Oxidase
b Hypoxanthine guanine phosphoribosyl transferase
c Adenine phosphoribosyl transferase
d Adenosine deaminase

6 _____ is C-4 epimer of Glucose.
a Galactose
b Mannose
c Ribose
d Fructose

7 _____ is a non-reducing saccharide.

a Maltose
b Lactose
c Sucrose
d Isomaltose

8 ____ serves as start codon and codes for amino acid methionine in translation

a UAG
b UAA
c AUG
d UGA

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

a Mutarotation
b Epimerization
c Racemization
d Inversion

10 Lipase enzyme belongs to ____ class according to IUB.

a Oxidoreductase
b Transferase
c Hydrolase
d Lyase

11 _____is the link between urea cycle and TCA Cycle.

a alpha keto glutarate
b succinate
c Fumarate
d Citrate

12 _____is the amino acid containing Indole group.

a Leucine
b Tryptophan
c Histidine
d Lysine

13 Gluconeogenesis takes place in_____.

a Cytoplasm
b cytoplasm & Mitochondria
c Mitochondria
d Endoplasmic reticulum

14 ____is an alternative pathway to glycolysis for oxidation of Glucose
a Pentose Phosphate Pathway
b Cori cycle
c Glucose alanine cycle
d Gluconeogenesis

15 The number of ATP molecules formed by Beta oxidation of one molecule of Palmitic acid are_____.
a 126
b 106
c 135
d 108

16 Sucrose on hydrolysis gives___.
a Glucose & Fructose
b Glucose & Glucose
c Fructose & fructose
d Glucose and Galactose

17 The total ATP yields from oxidation of one mole of acetyl CoA by TCA cycle is_____.
a 8
b 16
c 24
d 12

18 The example of Saturated fatty acid ____.
a Palmitic acid
b Linolenic acid
c Linoleic acid
d Oleic acid

19 Complex ____is the site of oxidative Phosphorylation.
a II
b III
c V
d IV

20 ___is the regulatory enzyme in glycolysis.
a Phosphofructokinase
b Enolase
c Glucose-1,6 bisphosphate
d aldolase

Q. 2 A **Answer any two questions.** 20

a i) Discuss enzyme inhibition with respect to Michealis plot along with suitable examples. 5

ii) Describe the reactions catalysed by FAS complex in De Nova synthesis of fatty acid 5

b i) Give an outline of Kreb's cycle. Explain the term glycogenesis. 5

ii) Write a note on Glycogenolysis. Draw the structure of cholesterol. 5

c i) Explain in brief the steps involved in prokaryotic replication 5

ii) Discuss the salvage pathway for purines. Write the reaction involved in conversion of UTP to CTP. 5

Q. 2 B **Answer any seven questions** 35

i) Explain the formation of ketone bodies

ii) Classify carbohydrates based on their structure. Give structure of lactose.

iii) Write a note on carnitine shuttle.Explain the energetics for beta oxidation of Palmitic acid

iv) Give an outline of Urea cycle and give the linkage of Urea cycle with TCA cycle.

v) Discuss the synthesis of AMP and GMP from IMP.

vi) Enlist the component of ETC. Explain oxidative and substrate level phosphorylation.

vii) Discuss Cori cycle and Glucose -alanine cycle w.r.t reactions involved

viii) Describe the Payoff phase of Embden Meyerhof Pathway.

ix) Describe the steps involved in replication of prokaryotes with a neat labelled diagram.
