 F.Y.B. Pharmy 11/8/2025

Duration: 3 Hrs **Total marks: 75 M**

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 optically inactive amino acid is________.
a Proline
b Serine
c Glycine
d Leucine

2 What is the standard free energy change of ATP?
a Small and negative
b Large and positive
c Large and negative
d Small and positive

3 ______________ takes place in two compartments i.e cytosol and mitochondria?
a Gluconeogenesis
b Glycogenesis
c Glycolysis
d Glycogenolysis

4 A reaction, which proceeds with net release of free energy and is spontaneous, is called as _________.
a Endergonic reaction
b Exergonic reaction
c Endothermic reaction
d Exothermic reaction

5 Final acceptor of electrons in ETC is ___________.
a Cytochrome C
b Oxygen
c FADH2
d Coenzyme Q

6 Which of the following is a debranching enzyme?
a Glycogen synthetase
b Glucose-6-phosphatase
c Amylo 1,6 glucosidase
d Amylo 1,4-1,6 transglycosylase

7 ____________________is the regulatory enzyme in glycolysis.
a Phosphofructokinase
b Enolase
c glucose-1,6 bisphosphatase
d aldolase

8 Pyruvate is converted to acetyl CoA by ________________.
- **a** Pyruvate dehydrogenase complex
- **b** Pyruvate carboxylase
- **c** Pyruvate kinase
- **d** Acetyl CoA carboxylase

9 The number of ATP formed by oxidation of one molecule of palmitic acid is
- **a** 146
- **b** 106
- **c** 134
- **d** 34

10 Acetyl CoA Carboxylase is activated by:
- **a** Malonyl CoA
- **b** Citrate
- **c** Palmitoyl CoA
- **d** Acetoacetate

11 Which compound is commonly formed as a byproduct during transamination reactions?
- **a** α-Keto acid
- **b** Urea
- **c** Glucose
- **d** Lactate

12 Transfer of an amino group from an amino acid to an alpha keto acid is catalysed by______________.
- **a** Aminases
- **b** Transaminases
- **c** transketolases
- **d** Deaminases

13 Mutases enzyme are involved in ______________.
- **a** Oxidation reduction reaction
- **b** Hydrolysis reaction
- **c** Isomerization reaction
- **d** Addition or removal group reaction

14 Noncompetitive enzyme inhibition leads to ____________.
- **a** Decrease in V_{max}
- **b** Increase in V_{max}
- **c** No change in V_{max}
- **d** Increase in K_m

15 Puromycin is a drug that interferes with _________.
- **a** Protein synthesis
- **b** Nucleotide synthesis
- **c** DNA replication
- **d** RNA synthesis

16 Gout is caused due to impaired excretion or overproduction of ________..

a Guanine
b Hypoxanthine
c Xanthine
d Uric acid

17 AUG serves as

a Start codon
b Non-sense codon
c Stop codon
d Anticodon

18 In DNA replication ___________ is responsible for removal of supercoiling as the replication fork moves ahead.

a Topoisomerase
b Primase
c Ligase
d Helicase

19 Which strand serves as the template during transcription?

a Coding strand
b Non-coding strand
c Sense strand
d Leading strand

20 _____________ is a part of urea cycle.

a Ornithine transcarbamoylase
b Asparginase
c Glutamate synthase
d gluatamine transaminase

Q. 2 A Answer any two questions. 20

a
i) Explain the regulatory steps of glycolysis with respect to name and structure of intermediates, enzymes and cofactors. 5
ii) Give an outline of Kreb's cycle. Explain the term glycogenesis. 5

b
i) Discuss the utilization of ketone bodies. 4
ii) Differentiate between prokaryotic and eukaryotic transcription. 4
iii) Describe the synthesis of GMP from IMP. 2

c
i) Enlist various classes of enzyme as per IUB system. Discuss Michaelis–Menten plot with respect to reversible enzyme inhibition. 5
ii) Draw the structure of ATP and give its biological significance. Name any 2 basic amino acid. 5

Q. 2 B Answer any seven questions 35

i) Write a note on secondary structure of proteins. Draw structure of Lecithin.
ii) Classify carbohydrates based on their structure. Give structure of lactose.
iii) Give the names and structures of substrate and product for the following enzyme catalysed reactions: - a) glucose-6-phosphotase b) HMG CoA synthase
iv) Discuss the synthesis of mevalonate from acetate. Give the name of any drug modulating lipid metabolism.
v) Explain the four reactions involved in β- oxidation of Palmitic acid with bioenergetics.
vi) What is gout? Explain salvage pathway of purine with its significance.
vii) Give the reactions involved in conversion of UMP to CTP and write a note on inhibitors of purine biosynthesis.
viii) What is proton motive force? Explain the oxidative phase of Pentose Phosphate Pathway.
ix) Explain the deamination and decarboxylation reactions with an example each.
