W 003/158

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Enrolment Number										

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Winter, 2024

B. Pharm 2nd Semester Examination

BIOCHEMISTRY (THEORY)

Paper Code: BP203T

Full Marks – 75 **Time – 3 hours**

The figure in the margin indicates full marks for the questions.

1. Choose the correct answer: (1 x 20 = 20)

i. Polysaccharides are
A. Polymers B. Acids C. Proteins D. Oils

ii. The sugar found in DNA is
A. Xylose B. Ribose C. Deoxyribose D. Ribulose

iii. In the diet of a diabetic patient, the recommended carbohydrate intake should preferably be in the form of
A. Monosaccharides B. Dissaccharides C. Polysaccharides D. All of these

iv. Number of carbon atoms present in cholesterol is
A. 17 B. 19 C. 27 D. 30

v. Pentose production is increased in
A. HMP shunt B. Uromic acid pathway C. EM pathway D. TCA cycle

vi. Which of the following is not an enzyme involved in glycolysis?
A. Enolase B. Aldolose C.Hexokinase D. Glucose oxidase

vii. The integrator between the TCA cycle and urea cycle is
A. Fumarate B. Malate C. Pyruvate D. Citrate

viii. The number of molecules of ATP produced by the total oxidation of acetyl CoA in TCA cycle is
A. 6 B. 8 C. 10 D. 12

ix. The site for gluconeogenesis are
A. Liver and kidney
B. Skin and pancreas
C. Lung and brain
D. Intestine and lens of eye

x. Transamination is a/an
A. Irreversible process B. Reversible process C. Both A and B D. None of these

xi. Long chain fatty acids are first activated to acetyl-CoA in
A. Cytosol B. Microsomes C. Nucleus D. Mitochondria

xii. An enzyme required for the synthesis of ketone bodies as well as cholesterol is
A. Acetyl CoA carboxylase B. HMG CoA synthetase C. HMG CoA reductase D. HMG CoA lyase

xiii. During each cycle of β-oxidation
A. One carbon atom is removed from the carboxyl end of the fatty acid
B. One carbon atom is removed from the methyl end of the fatty acid
C. Two carbon atoms are removed from the carboxyl end of the fatty acid
D. Two carbon atoms are removed from the methyl end of the fatty acid

xiv. A Holoenzyme is
A. Functional unit B. Apo enzyme C. Coenzyme D. All of these

xv. Lineweaver – Burk double reciprocal plot is related to
A. Substrate concentration B. Enzyme activity C. Temperature D. Both A and B

xvi. Control of urea cycle involves the enzyme
A. Carbamoyl phosphate synthetase
B. Ornithine transcarbamoylase
C. Argininosuccinase
D. Arginase

xvii. 5-HT is
A. Melatonin B. Serotonin C. Dopamine D. 5-hydroxytryptophan

xviii. All the following compounds are members of the electron transport chain except
A. Ubiquinone B. Carnitine C. NAD D. FAD

xix. Which inactivates an enzyme by occupying its active site?
A. Competitive inhibitor B. Allosteric inhibitor C. Non-competitive inhibitor D. All of these

xx. Hexokinase (Glucose + ATP → Glucose-6– P + ADP) belongs to the category
A. Transferases B. Lysases C. Oxidoreductases D. Isomerases

2. Answer *any two*: (10 x 2 = 20)

i. Derive Michaelis-Menten equation of enzyme kinetics. 10
ii. Describe the metabolism of amino acid by transamination and deamination process. 10
iii. Write down a brief note on replication, transcription and translation. 3+4+3

3. Answer *any seven*: (5 x 7 = 35)

. Compare competitive and non-competitive enzyme inhibition with example.
i. Classify high energy compounds with example.
ii. Give the structural organization of different complexes of electron transport chain.

iv. Write down the irreversible steps of glycolysis.
v. Describe the biological importance of catecholamines.
vi. Write down the beta-oxidation of saturated fatty acid.
vii. Write down the catabolism of Phenylalanine.
viii. Describe the biosynthesis of pyrimidine nucleotides.
ix. Describe why DNA replication is known as semi conservative method?