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MBE-1603220001010400

Seat No. _____

B. Sc. (Bioinformatics) (Sem. I) Examination

November / December – 2016

BI-104 : Fundamentals of Biochemistry & Biophysics

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) The right side indicates total marks of the question.

- 1 Attempt the following : 14
- (a) Answer the following short questions : (all compulsory) 4
- (1) The O–H bond in CH_3OH as ionic, polar covalent, or nonpolar covalent.
- (2) A water strider can walk across the surface of a small pond which of the effects is produced by water?
- (3) The pH of a solution is determined by _____ concentration.
- (4) Carbon needs _____ electrons to complete its valence shell.
- (b) Answer any one of the following short questions : 2
- (1) Entropy
- (2) Glycidic Bond
- (c) Answer any one of the following short questions. 3
- (1) Properties of water
- (2) Law of thermodynamics
- (d) Explain any one of the following questions in detail. 5
- (1) Water soluble vitamins
- (2) Describe weak interaction.

- 2** Attempt the following : **14**
- (a) Answer the following short questions : (all compulsory) **4**
- (1) An enzyme cannot change the equilibrium position of the reaction it catalyses but it lowers the energy of activation of that reaction (True or False)
 - (2) An enzyme that joins the ends of two strands of nucleic acid _____.
 - (3) The combination of apoenzyme and coenzyme = _____.
 - (4) Blocking of enzyme action by blocking its active sites is _____ inhibition.
- (b) Answer any one of the following short questions : **2**
- (1) Coenzymes and Cofactors
 - (2) Active site
- (c) Answer any one of the following short questions : **3**
- (1) Competitive inhibition
 - (2) Allosteric enzyme regulation.
- (d) Explain any one of the following questions in detail : **5**
- (1) Enzyme properties
 - (2) Mechanism of enzyme action
- 3** (a) Answer the following short questions : (all compulsory) **4**
- (1) Glycosphingolipids are a combination of Ceramide with one or more sugar residues (true or false)
 - (2) The enzymes of beta-oxidation are found in
 - (3) Net ATP generation on complete oxidation of stearic acid is
 - (4) The number of double bonds in arachidonic acid is
- (b) Answer any one of the following short questions : **2**
- (1) PS-II
 - (2) Carnitine

- (c) Answer any one of the following short questions : 3
- (1) Photophosphorylation
 - (2) Homopolysaccharide
- (d) Explain any one of the following questions in detail. 5
- (1) Lipid classification
 - (2) Krebs cycle
- 4 Attempt following : 14
- (a) Answer the following short questions : (all compulsory) 4
- (1) A nucleoside consists of _____
 - (2) The amino acid containing an indole ring is _____.
 - (3) The naturally occurring form of amino acid in proteins.
 - (4) The sugar in RNA is _____, the sugar in DNA is _____.
- (b) Answer any one of the following short questions : 2
- (1) mRNA
 - (2) acidic amino acid
- (c) Answer any one of the following short questions : 3
- (1) Function of Protein
 - (2) Pyrimidine synthesis
- (d) Explain any one of the following questions in detail. 5
- (1) NA classification
 - (2) Oxidation of amino acid

- 5 Attempt the following : 14
- (a) Answer the following short questions : (all compulsory) 4
- (1) What term is used to describe the process by which a segment of DNA is copied to produce a molecule of messenger RNA ?
 - (2) Hemoglobin is the example of _____protein structure.
 - (3) The length of one turn of DNA is _____ A0.
 - (4) How many stop codons are there in the genetic code ?
- (b) Answer any one of the following short questions : 2
- (1) A-DNA
 - (2) Sanger method
- (c) Answer any one of the following short questions. 3
- (1) Secondary structure of protein
 - (2) DNA supercoiling
- (d) Explain any one of the following questions in detail. 5
- (1) Types of protein structure
 - (2) N-terminal Squencing
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