



ML - 255

Seat No. _____

003-001214

B. Sc. (Sem. II) (CBCS) Examination

April / May – 2012

P - 201 : Biochemistry

(Biomolecules)

Faculty Code : 003

Subject Code : 001214

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

[Total Marks : 70

SECTION - I

1 Circle (0) the correct answer : **20**

(1) From the abbreviated name of the compound Gal (beta->4)Glc, we know that

- (a) both sugars are beta anomers
- (b) the galactose residue is at the reducing end.
- (c) the sugars are joined by a glycosidic bond.
- (d) the compound is a D-enantiomer.

(2) They are stored in plant and animal cells respectively :

- (a) Starch and cellulose
- (b) Glucose and sucrose
- (c) Starch and Glycogen
- (d) Fructose and glucose

- (3) α -D-glucose + 112° \rightarrow + 52.5° \leftarrow + 190° β -D-glucose for glucose above represents
- (a) Optical isomerism
 - (b) Epimerisation
 - (c) Mutarotation
 - (d) D and L isomerism.
- (4) The constituent unit of insulin is
- (a) Glucose
 - (b) Mannose
 - (c) Fructose
 - (d) Galactose
- (5) Which amino acid is not in the group of basic amino acid ?
- (a) aspartic acid
 - (b) lysine
 - (c) arginine
 - (d) histidine
- (6) If pI value of any amino acid is 6, so at pH 9 it will act as _____
- (a) cation
 - (b) anion
 - (c) zwitterion
 - (d) all of above

- (7) Milk protein is the example of the
- (a) Storage protein
 - (b) Transport protein
 - (c) Phosphoprotein
 - (d) Lipoprotein
- (8) Acid hydrolysis of protein or polypeptide is dissolved in
- (a) 6M HCl and heated at 110°C for 20-70 hours.
 - (b) 2-4N HCl and heated at 110°C for 5-8 hours
 - (c) 2-4 N HCl and heated at 110°C for 20-70 hours.
 - (d) 6N HCl and heated at 110°C for 20-70 hours
- (9) Which of the following enzyme is not a nucleotide ?
- (a) FAD
 - (b) Arginine
 - (c) CoASH
 - (d) NAD
- (10) The fundamental unit of genetic information is known as _____
- (a) Chromosome
 - (b) Gene
 - (c) Genome
 - (d) RNA

- (11) The number of base pairs present in each turn of Z-form of DNA helix.
- (a) 11
 - (b) 9
 - (c) 12
 - (d) 10
- (12) The nitrogenous base not present in RNA structure.
- (a) Adenine
 - (b) Guanine
 - (c) Thymine
 - (d) Cytosine
- (13) Which form of Vitamin A is component of Rhodopsin, involved in Wald Cycle ?
- (a) Carotenes
 - (b) Retinoic acid
 - (c) Retinol
 - (d) Retinal
- (14) The deficiency symptoms of which vitamin includes : Dermatitis, Diarrhea and Dementia ?
- (a) Thiamine
 - (b) Riboflavin
 - (c) Cholecalciferol
 - (d) Niacin

- (15) Which one of these is a cause of obstructive jaundice ?
- (a) Gall stone
 - (b) Thalassemia
 - (c) Hepatitis
 - (d) Mismatch blood transfusion
- (16) How many pyrrole rings are present in structure of porphyrin ?
- (a) 4
 - (b) 2
 - (c) 8
 - (d) 6
- (17) A phospholipids molecule is similar to a fat molecule but it has only _____ fatty acids.
- (a) one
 - (b) three
 - (c) two
 - (d) four
- (18) Phospholipids are amphipatic because of their
- (a) hydrophobic head and hydrophilic tails
 - (b) hydrophobic tails and hydrophobic tails
 - (c) hydrophilic head and hydrophilic tails
 - (d) hydrophobic tails and hydrophilic heads

(19) If the fatty acid is esterified with an alcohol of high molecular weight instead of glycerol, the resulting compound is

- (a) Lipositol
- (b) Plasmalogen
- (c) Wax
- (d) Cephalin

(20) Kerasin consists of

- (a) Nervonic acid
- (b) Clupanodonic acid
- (c) Cervonic acid
- (d) Lignoceric acid

SECTION - II

A (a) Answer any **three** from the following : **3×2=6**

- (i) Define enantiomer with example.
- (ii) What do you mean by Denaturation and renaturation of protein ?
- (iii) Draw the structure of AMP.
- (iv) Why Pellagra is common in people who has eat maize as a staple diet ?
- (v) Define Waxes and give its biological importance.
- (vi) Draw the structure of sulfur containing amino acid.

(b) Answer any **three** from the following : **3×3=9**

- (i) Give the principle of Benedict's test.
- (ii) Explain conjugated protein with an example.
- (iii) What is the Molecular weight of 100 bp DNA ?
- (iv) Write differences between water soluble and fat soluble vitamins.
- (v) Give biological functions of gangliosides and cerebroside.
- (vi) Draw the structure of aromatic amino acid.

- (c) Answer any **two** from the following : **2×5=10**
- (i) Write classification with one example and structure of each.
 - (ii) Write a short note : titration curve of amino acid.
 - (iii) Explain briefly : Hershey and Chase experiment.
 - (iv) Describe functions and deficiency of Vitamin A
 - (v) Write a short note on Phospholipids.

- B** (a) Answer any **three** from the following : **3×2=6**
- (i) Define heteropolysaccharides with example.
 - (ii) Define amino acid and give two examples of it.
 - (iii) Define : Chargaff's rule.
 - (iv) How will you diagnose and treat porphyria ?
 - (v) Which test is carried out to check the presence of free fatty acids in oils ? Explain the test.
 - (vi) Write the function of mRNA.

- (b) Answer any **three** from the following : **3×3=9**
- (i) Define saponification and give its significance.
 - (ii) Explain α -helix structure of the protein.
 - (iii) Explain : Central Dogma of Molecular Biology
 - (iv) Write the biological importance of porphyrin.
 - (v) Giving example, write D and L isomers of sugars.
 - (vi) How will you separate different plasma lipoproteins ? Explain.

- (c) Answer any **two** from the following : **2×5=10**
- (i) Write in detail oxidation-reduction reactions of monosaccharides
 - (ii) Properties of protein.
 - (iii) Explain in detail : Structure of tRNA
 - (iv) Describe about jaundice.
 - (v) Briefly discuss nomenclature of fatty acids.