UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – I
Supplementary Examination - 2017

Roll No. .....

Subject: Biochemistry-I
PAPER: A (Macro Molecules)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 40

NOTE: **Attempt FIVE questions including question # 1 which is compulsory. All questions carry equal marks.**

Q. No. 1: Select the best option. (8)

1. Which of the following is not a reducing sugar?
(A) Fructose (B) Glucose (C) Glyceraldehyde (D) Sucrose

2. **Milk is deficient in which vitamins?**
(A) Vitamin C (B) Vitamin A (C) Vitamin B2 (D) Vitamin K

3. **A lipid bilayer is permeable to**
(A) Urea (B) Fructose (C) Glucose (D) Potassium

4. **A pentose sugar is**
(A) Glucose (B) Ribulose (C) Erythrose (D) Dihydroxyacetone

5. **The number of isomers of glucose is**
(A) 2 (B) 14 (C) 8 (D) 16

6. **An amino acid which contains a disulphide bond is**
(A) Lysine (B) Methionine (C) Homocysteine (D) Cystine

7. **Since the pK values for aspartic acid are 2.0, 3.9 and 10.0, so its isoelectric (pH) is**
(A) 3.0 (B) 3.9 (C) 5.9 (D) 6.0

8. **The enzyme which can add water to a carbon-carbon double bond or remove water to create a double bond without breaking the bond is**
(A) Hydratase (B) Hydroxylase (C) Hydrolase (D) Esterase

Q. No. 2: How many different amino acids are found in protein? Explain any five (8)

Q. No. 3: Write a note on Fibrous and Globular Proteins. (8)

Q. No. 4: Define secondary structure of Protein. Explain features and characteristic amino acids of α -helix, β-Sheets and β turns. (8).

Q. No. 5: Explain classification of carbohydrates. Give at least one example with structure for each type. (8)

Q. No. 6: How lipids are classified. Give biological significance of Cholesterol and Lipoproteins. (8)

Q. No. 7: How RNA differs from DNA? Explain the functions of four types of RNA. (8)

Q. No. 8: Explain structural aspects of DNA and compare characteristics of DNA-B, DNA-A and DNA-Z. (8)

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Supplementary Examination - 2017

Roll No. .....

Subject: Biochemistry-I
PAPER: B (Enzymology and Signal Transduction)

TIME ALLOWED: 3 hrs.
MAX. MARKS: 35

NOTE: Attempt any FIVE questions. Question # 1 is compulsory. All questions carry equal marks.

Q. No.1. **Select the correct answer.** 7

i), In enzyme kinetics Km implies

(A) The substrate concentration that gives one half Vmax

(B) The dissocation constant for the enzyme substrate comples

(C) Concentration of enzyme

(D) Half of the substrate concentration required to achieve Vmax

ii), Vitamin A or retinal is a

(A) Steroid

(B) Polyisoprenoid compound containing a cyclohexenyl ring

(C) Benzoquinone derivative

(D) 6-Hydroxychromane

iii), The requirement of vitamin E is increased with greater intake of

(A) Carbohydrates (B) Proteins

(C) Polyunsaturated fat (D) Saturated fat

iv), All immunoglobulins contain

(A) 4 L chains (B) 4 H chains

(C) 3 L chains (D) 2 L chains and 2 H chains

v), The percent of total iron in body in hemoglobin is

(A) 10–20 (B) 20–30

(C) 30–40 (D) 60–70

vi), Iodine is the constituent of

(A) T3 and T4 (B) PTH

(C) Insulin (D) Adrenaline

vii), The principal cation of extra cellular fluid

(A) K+ (B) Na+

(C) H+ (D) Ca2+

Q. No.2. Describe the structure, mechanism and functions of insulin. 7

Q. No.3. What are water soluble vitamins? Discuss the structure and functions of vitamin B complex. 7

Q. No.4. Define catalytic part of enzyme. Explain the effect of temperature and pH on the activity of enzyme. 7

Q. No.5. Define innate immunity? Describe the role and phagocytic activity of macrophages. 7

Q. No.6. Describe the Type I hypersensitivity with examples. 7

Q. No.7. Discuss the function, absorption and storage of calcium in humans. 7