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**GIET UNIVERSITY, GUNUPUR – 765022**

B. Sc (AG) (Third Semester) Examinations, December' 2020

**AC 213 – FUNDAMENTALS OF PLANT BIOCHEMISTRY**

Time: 2 hrs

Maximum: 50 Marks

**The figures in the right hand margin indicate marks.****PART – A****Q.1. Fill in the blanks with suitable word / figure. (10 x 0.5 = 5 Marks)**

- The term biochemistry was first introduced by \_\_\_\_\_
- The most abundant biomolecules on earth is \_\_\_\_\_
- The lipid that can serve as cellular energy source \_\_\_\_\_
- The unusual fatty acid present in castor oil -----
- The general structures of all amino acids are same except for \_\_\_\_\_.
- pH at which the amino acid has no tendency to move either towards positive or negative electrode  
\_\_\_\_\_
- The reagent that is used for quantitative determination of amino acid is \_\_\_\_\_
- The non protein part of an enzyme is known as \_\_\_\_\_
- The catalytic activity of an enzyme is restricted to its small portion is called \_\_\_\_\_
- The composition of nucleotides is \_\_\_\_\_

**Q. 2. Define (or) Explain the following in one or two sentences. (5 x 1 = 5 Marks)**

- Define epimers. Give examples.
- Define waxes
- What are essential fatty acids? Name any two of them.
- What are zwitter ions?
- Define active sites and its salient features.

**Q3. Choose the most appropriate answer from the following (10 x 0.5 = 5 Marks)**

- Biochemistry is the
  - Study of microorganism
  - Study of biomolecules
  - Chemistry of living organisms
  - Chemistry of photosynthesis
- Carbohydrates are also known as
  - Hydrates of carbon
  - Carbonates
  - Glycolipids
  - Polysaccharides

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- c. The epimer of glucose is
- (i) Fructose (ii) Galactose
- (iii) Ribose (iv) Deoxy ribose
- d. Class of carbohydrate which cannot be hydrolyzed further, is known as?
- (i) Monosaccharide (ii) Oligosaccharide
- (iii) Disaccharide (iv) Polysaccharide
- e. An example for compound lipid is
- (i) Lecithin (ii) Waxes
- (iii) Triglycerides (iv) Jojoba oil
- f. Erucic acid is present in
- (i) Palm oil (ii) Mustard oil
- (iii) Rice bran oil (iv) Soybean oil
- g. Which of the following amino acid is a limiting amino acid in pulses?
- (i) Leucine (ii) Lysine
- (iii) Methionine (iv) Glutamine
- h.  $\beta$  pleated sheets are the example of
- (i) Primary structure (ii) Tertiary structure
- (iii) Secondary structure (iv) Quaternary structure
- i. Basically how many enzymes have been recognized by the IUB
- (i) 4 (ii) 8
- (iii) 10 (iv) 6
- j. Many enzymes functions by \_\_\_\_\_ activation energy of reaction.
- (i) Increasing (ii) Lowering
- (iii) Stable (iv) Promoting

**Q4. Write true or false against each statement****(10 x 0.5 = 5 Marks)**

- a. Carbohydrates with free aldehyde / Ketone groups are known as reducing sugars - True
- b. Fructose and Glucose can be distinguished by Benedict's reagent - False
- c. Fat storing cells of vertebrates are called Melanocytes - False
- d. A lipid is formed by the condensation reaction between Fattyacids and alcohol - True
- e. All the naturally occurring amino acids are L type - True
- f. Hydrogen bond is referred to as the backbone of proteins - False
- g. Enzyme which hydrolyses starch to maltose is amylase - True
- h.  $K_m$  is the Lineweaver's constant - False
- i. Beyond optimum temperature the enzyme becomes hyperactive - False
- j. Thymine is not the components of RNA - True

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**PART – B**

Attempt **ANY FIVE** questions. All question carries equal marks

**(6 x 5 = 30 Marks)**

1. Write the classification of carbohydrates
2. How are lipids classified? Explain with examples.
3. Write the brief note on the classification of phospholipids.
4. Discuss the classification of amino acids
5. What are enzymes? Describe the nomenclature and classification
6. Write an account on factors affecting enzyme activity

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