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**SRI VENKATESWARA UNIVERSITY**

**B.Sc. DEGREE COURSE IN PARAMEDICAL TECHNOLOGY**

**III- SEMESTER**

(Syllabus under CBCS w.e.f. 2021-22)

**PAPER-III- PRINCIPLES OF BIOCHEMISTRY**

**Course Outcomes:** By the completion of the course the graduate should able to –

**CO1:**Describe the properties of water

**CO2:**Describe the carbohydrates types & basic structure

**CO3:**Describe the structure and types of proteins

**CO4:**Explain the structure and types of Lipids

**CO5:**Describe the properties and nomenclature of vitamins

**Learning objectives**

1. To understand the properties of water
2. To understand the carbohydrates types & basic structure
3. To understand the structure and types of proteins.
4. To understand the structure and types of Lipids.
5. To understand the properties and nomenclature of vitamins

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### PAPER-III- PRINCIPLES OF BIOCHEMISTRY

#### UNIT- 1

- 1.1 Water – Physical Properties, Structure and its interactions,
- 1.2 Role of Water in Life.
- 1.3 PH & Buffers- Bronzed-Lowry Theory of Acids and Bases,
- 1.4 Buffers- Biological Buffer Systems.

#### UNIT- 2

- 2.1 Carbohydrates: – Monosaccharide's, Polysaccharides - Definition, Classification, Properties & Reactions.

#### UNIT-3

- 3.1 Proteins: – Definition, Classification, Properties& Reactions. 3.2 Amino acids: - Definition, Classification, Properties &Reactions.

#### UNIT-4

- 4.1 Lipids: – Definition, Classification, Properties&4.2 Reactions. Enzymes: - Definition, Classification, Properties &Reactions.

#### UNIT-5

- 5.1 Vitamins &Minerals: A, B, C, D, E& K-
- 5.2 Nomenclature, Sources, Occurrences, Functions and its Metabolisms.

#### Reference Books

1. A Text book of Medical Biochemistry-Chatterjæ & Shinde.
2. A Text book of Biochemistry-C.B. Power & Catwalk.
3. Principles of Biochemistry- Nelson Cox.
4. Medical laboratory Procedure Manual (T-M) by K.L. Mukherjee 1987, Valhi, II & Imitate

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**PAPER - PRINCIPLES OF BIOCHEMISTRY**

**MODEL QUESTION PAPER**

**Time : 3 hrs**

**Max. Marks : 75**

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**SECTION –I**

**Answer any FIVE of the following**

**5x5 = 25 Marks**

**(Draw labeled diagrams wherever necessary)**

1. Water – Physical properties.
2. Buffer.
3. Glucose.
4. Amino acids
5. Proteins.
6. Enzymes
7. Vitamin D
8. calcium

**SECTION –II**

**Answer ALL the questions each question carries 10 marks**

**5x10=50 Marks**

**(Draw diagrams wherever necessary)**

9. (a) Explain about role of water in life. (or)  
(b) Describe the Bronzed-Lowry theory f Acids & Bases.
10. (a) Classify the carbohydrates in brief. (or)  
(b) Write about properties and reactions of Mono saccharine.
11. (a) Define Proteins and write about its properties. (or)  
(b) What is amino acids? Classify them and write about brief.
12. (a) Describe about Lipids. (or)  
(b) Write an essay on enzymes.
13. (a) Write about water soluble vitamins. (or)  
(b) Write any four macro molecules (i.e. Macro minerals ) necessity in nutrition.

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**PAPER - PRINCIPLES OF BIOCHEMISTRY PRACTICAL SYLLABUS**

1. General Instructions
2. Units of Measurements
3. First Aid Equipment Kit kept in a Laboratory
4. Collection of Specimen and Preservation
5. Types of blood used for tests
6. Qualitative Analysis of Carbohydrates Sample-1
7. Qualitative Analysis of Carbohydrates Sample-2
8. Qualitative Analysis of Proteins Sample-1
9. Qualitative Analysis of Proteins Sample-2
10. Identification of unknown Amino acids by Paper Chromatography.
11. Identification of unknown Sugars by Paper Chromatography.
12. Estimation of Blood Glucose by GOD –POD Method.
13. Estimation of Serum Bilious bin by Enzymatic Method