

**Course IV: Biochemistry (MSCZO-504)****Syllabus:**

Chemical Equilibrium: Concepts of thermodynamics, High energy compounds (ATP), oxidation and reduction and buffering mechanism of the body. Enzymes: Nomenclature, classification, action mechanism and factors affecting enzyme activity. Chemical structure and classification, sources and deficiency state of vitamins. Carbohydrates: Structure, classification sources and metabolism. Proteins: Chemical structure, classification, sources, metabolism and defects of protein nutrition. Lipids: Structure, classification and sources, Biosynthesis of fatty acids, Cholesterol, Porphyrins and bile pigments. Glycolysis, Gluconeogenesis, Glycogenesis, Glycogenolysis, Electron Transport Chain and Hexose–Monophosphate Shunt.

**Biological Chemistry****Block I**

**Unit 1:** Chemical Equilibrium

**Unit 2:** Enzymes

**Unit 3:** Vitamins

**Unit 4:** Carbohydrates

**Block II**

**Unit 5:** Proteins

**Unit 6:** Lipids

**Unit 7:** Biochemical Oxidation

**Course IV: Bio-chemistry (MSCZO -504)****UNIT WISE CONTENTS (MSCZO-504)****Course IV: Biochemistry (MSCZO-504)****Block I**

**Unit 1:** Chemical Equilibrium

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- 1.2 Introduction
- 1.3 Concepts of Thermodynamics
- 1.4 High Energy Compounds with Special Reference to ATP
- 1.5 Concepts of Oxidation and Reduction
- 1.6 Buffering Mechanism
- 1.7 Summary
- 1.8 Terminal Questions and Answers

**Unit 2:** Enzymes

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- 2.3 Nomenclature and Classification
- 2.4 Enzyme Kinetics
- 2.5 Mechanism of Enzyme Action
- 2.6 Factors Influencing Enzyme Activity
- 2.7 Chemical Structure and Significance of Coenzyme and their Specificity

- 2.8 Summary
- 2.9 Terminal Questions and Answers

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- 3.5 Sources and Deficiency State of Fat and Water Soluble Vitamins
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**Block II.**

**Unit 5: Proteins**

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- 5.4 Metabolism of Proteins
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**Unit 6: Lipids**

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- 6.4 Biosynthesis and Utilization of Fatty Acids
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7.3 Breakdown of Carbohydrates

7.4  $\beta$ - oxidation of Fats

7.5 Bioenergetics of High Energy Compounds

7.6 Electron Transport Chain and production of ATP

7.7 Summary

7.8 Terminal Questions and Answers