# LESSON PLAN

## SUBJECT-BIOCHEMISTRY & CLINICAL PATHOLOGY(D.PHARM-II)

| TITLE OF CHAPTER | THEORY DAY | TOPIC TO BE COVERED | DATE | ACTUAL PROGRESS | REMARK |
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| 1.INTRODUCTION TO BIOCHEMISTRY: | 1 | Scope of biochemistry in pharmacy | | | |
| | 2 | Cell and its biochemical organization | | | |
| 2.CARBOHYDRATES | 3 | Definition, classification with examples, chemical properties | | | |
| | 4 | Monosaccharides - Structure of glucose, fructose, and galactose | | | |
| | 5 | Disaccharides - structure of maltose, lactose, and sucrose | | | |
| | 6 | Polysaccharides - chemical nature of starch and glycogen | | | |
| | 7 | Qualitative tests and biological role of carbohydrates | | | |
| 3.PROTEINS | 8 | Definition, classification of proteins based on composition and solubility with examples | | | |
| | 9 | Definition, classification of amino acids based on chemical nature and nutritional requirements with examples | | | |
| | 10 | Structure of proteins (four levels of organization of protein structure) | | | |
| | 11 | Qualitative tests and biological role of proteins and amino acids of proteins. | | | |
| | 12 | Diseases related to malnutrition of proteins | | | |
| 4. LIPIDS | 13 | Definition, classification with examples | | | |
| | 14 | Structure and properties of triglycerides (oils and fats) | | | |
| | 15 | Fatty acid classification - Based on chemical and nutritional requirements with examples | | | |
| | 16 | Structure and functions of cholesterol in the body Lipoproteins - types | | | |
| | 17 | Lipoproteins composition and functions in the body Qualitative tests and functions of lipids | | | |
| 5. NUCLEIC ACIDS | 18 | Definition, purine and pyrimidine bases | | | |

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| | 19 | Components of nucleosides and nucleotides with examples | | | |
| | 20 | Structure of DNA (Watson and Crick model), | | | |
| | 21 | RNA and their functions | | | |
| 6 ENZYMES | 22 | Definition, properties and IUB and MB classification | | | |
| | 23 | Factors affecting enzyme activity | | | |
| | 24 | Mechanism of action of enzymes, | | | |
| | 25 | Enzyme inhibitors | | | |
| | 26 | Therapeutic and pharmaceutical importance of enzymes | | | |
| 7. VITAMINS | 27 | Definition and classification with examples | | | |
| | 28 | Sources, chemical nature, functions of vitamins | | | |
| | 29 | coenzyme form | | | |
| | 30 | recommended dietary requirements | | | |
| | 31 | Deficiency diseases of fat soluble vitamins | | | |
| | 32 | Deficiency diseases of watersoluble vitamins | | | |
| *8 .METABOLISM (Study of cycle/pathways without chemical structures)* | 33 | **Metabolism of Carbohydrates:** Glycolysis, | | | |
| | *34* | TCA cycle | | | |
| | *35* | Glycogen metabolism, | | | |
| | *36* | Regulation of blood glucose level. | | | |
| | *37* | Diseases related to abnormal metabolism of Carbohydrates . | | | |
| | *38* | Diseases related to abnormal metabolism of Carbohydrates | | | |
| | 39 | **Metabolism of lipids:** Lipolysis, | | | |
| | 40 | β-oxidation of Fatty acid (Palmitic acid) | | | |
| | 41 | ketogenesis and ketolysis. | | | |
| | 42 | Diseases related to abnormal metabolism of lipids such as Ketoacidosis | | | |
| | 43 | Fatty liver, Hypercholesterolemia | | | |
| | 44 | **Metabolism of Amino acids (Proteins):** General reactions of amino acids and its significance– | | | |
| | 45 | Transamination, deamination, | | | |
| | 46 | Urea cycle | | | |
| | 47 | Decarboxylation. | | | |
| | 48 | Diseases related to abnormal | | | |

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| | | metabolism of amino acids, | | | |
| | 49 | Disorders of ammonia metabolism | | | |
| | 50 | phenylketonuria | | | |
| | 51 | alkaptonuria | | | |
| | 52 | Jaundice | | | |
| | 53 | **Biological oxidation**: Electron transport chain | | | |
| | 54 | Oxidative phosphorylation | | | |
| 9. **MINERALS:** | 55 | Types, Functions, Deficiency diseases, recommended dietary requirements of calcium | | | |
| | 56 | Functions, Deficiency diseases, recommended dietary requirements of phosphorus | | | |
| | 57 | Functions, Deficiency diseases, recommended dietary requirements of iron | | | |
| | 58 | Functions, Deficiency diseases, recommended dietary requirements of sodium | | | |
| | 59 | Functions, Deficiency diseases, recommended dietary requirements of chloride | | | |
| 10. WATER AND ELECTROLYTES | 60 | Distribution, functions of water in the body | | | |
| | 61 | Water turnover and balance | | | |
| | 62 | Electrolyte composition of the body fluids, | | | |
| | 63 | Dietary intake of electrolyte and Electrolyte balance | | | |
| | 64 | Dehydration, causes of dehydration | | | |
| | 65 | oral rehydration therapy | | | |
| **11. INTRODUCTION TO BIOTECHNOLOGY** | 66 | Definition,Importance,impact,Different fields of Biotechnology,overlap, | | | |
| | 67 | Main tools,Advantages of Biotechnology,Applications,Health benefits | | | |
| **12. ORGAN FUNCTION TESTS** | 68 | Functions of kidney | | | |
| | 69 | Routinely performed tests to assess the functions of | | | |
| | 70 | Kidney 'S clinical significances | | | |
| | 71 | Functions of liver | | | |
| | 72 | Routinely performed tests to assess the functions of | | | |

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| | 73 | liver 'S clinical significances | | | |
| | 74 | Lipid profile tests and its clinical significances | | | |
| **3. INTRODUCTION TO PATHOLOGY OF BLOOD AND URINE** | 75 | Lymphocytes their role in health | | | |
| | 76 | Lymphocyte related disease | | | |
| | 77 | Platelets, their role in health | | | |
| | 78 | Platelets, their related disease | | | |
| | 79 | Erythrocytes - Abnormal cells | | | |
| | 80 | Erythrocytes their significance | | | |
| | 81 | Normal constituents of Urine and their significance | | | |
| | 82 | Abnormal constituents of Urine and their significance | | | |

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