

LESSON PLAN
BASIC B.Sc. NUSING I YEAR

Subject code: 2

Subject: Biochemistry

Faculty: External Faculty

| UNIT | Topic | No.of lecture | Lecture serial no. |
|--|---|---------------|--------------------|
| I Introduction | • Definition and significance in nursing. | 1 | 1 |
| | • Review of structure, Composition and functions of cell. | 1 | 2 |
| | • Prokaryote and Eukaryote cell organization Microscopy | 1 | 3 |
| II Structure and functions of Cell membrane | • Fluid mosaic model tight junction, Cytoskeleton | 2 | 4-5 |
| | • Transport mechanism: diffusion, osmosis, filtration, active channel, sodium pump. | 2 | 6-7 |
| | • Acid base balance-maintenance & diagnostic tests.PH buffers | 2 | 8-9 |
| III Composition and metabolism of carbohydrates | • Types, structures, composition and uses. ○ Monosaccharides , Disaccharides, Polysaccharides, Oligosaccharides | 3 | 10-12 |
| | • Metabolism ○ Pathways of glucose : - Clycolysis - Gluconeogenesis : Cori's cycle, Tricarboxylic acid (TCA) cycle - Glycogenolosis - Pentose phosphate pathways (Hexose mono phosphate) ○ Regulation of blood glucose level Investigations and their interpretations. | 3 | 13-15 |

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| <p style="text-align: center;">IV</p> <p>Composition and metabolism of Lipids</p> | <ul style="list-style-type: none"> • Types, structure, composition and uses of fatty acids <ul style="list-style-type: none"> ○ Nomenclature, Roles and Prostaglandins • Metabolism of fatty acid <ul style="list-style-type: none"> ○ Breakdown ○ Synthesis • Metabolism of triacylglycerols • Cholesterol metabolism <ul style="list-style-type: none"> ○ Biosynthesis and its Regulation <ul style="list-style-type: none"> - Bile salts and bilirubin - Vitamin D - Steroid hormones, Lipoproteins and their functions : ○ VLDLs- IDLs, LDLs and HDLs ○ Transport of lipids ○ Atherosclerosis <p>Investigations and their interpretations.</p> | <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> | <p style="text-align: center;">16</p> <p style="text-align: center;">17</p> <p style="text-align: center;">18</p> <p style="text-align: center;">19</p> |
| <p style="text-align: center;">V</p> <p>Composition and metabolism of Amino acids and Proteins</p> | <ul style="list-style-type: none"> • Types, structure, composition and uses of Amino acids and Proteins • Metabolism of Amino acids and Proteins <ul style="list-style-type: none"> ○ Protein synthesis, targeting and glycosylation ○ Chromatography ○ Electrophoresis ○ Sequencing • Metabolism of Nitrogen <ul style="list-style-type: none"> ○ Fixation and Assimilation ○ Urea Cycle ○ Hemes and chlorophylls • Enzymes and co-enzymes <ul style="list-style-type: none"> ○ Classification ○ Properties ○ Kinetics and inhibition ○ Control <p>Investigations and their interpretations.</p> | <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">2</p> <p style="text-align: center;">2</p> | <p style="text-align: center;">20</p> <p style="text-align: center;">21</p> <p style="text-align: center;">22-23</p> <p style="text-align: center;">24-25</p> |

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| VI Composition of Vitamins and minerals | <ul style="list-style-type: none"> • Vitamins and minerals: <ul style="list-style-type: none"> ○ Structure ○ Classification ○ Properties ○ Absorption ○ Storage & transportation ○ Normal concentration | 1 | 26 |
| | Investigations and their interpretations | 1 | 27 |
| VII Immunochemistry | <ul style="list-style-type: none"> • Immune response, Structure and classification of immunoglobins | 1 | 28 |
| | <ul style="list-style-type: none"> • Mechanism of antibody production. Antigen: HLA typing. Free radical and Antioxidants. | 1 | 29 |
| | <ul style="list-style-type: none"> • Specialised Protein : Collagen, Elastin, Keratin, Myosin, Lens Protein. Electrophoretic and Quantitative determination of immunoglobins - ELISA etc. Investigation and their interpretations. | 1 | 30 |

EVALUATION:

Paper -2, Subject -Biochemistry, Duration -1HRS

Internal Assessment-25 , ExternalAssessment-30, Total Marks= 55

Internal Assessment: 25 Marks

(Out of 25 Marks to be send to the University)

Unit test I: 10 Marks

Unit test II:10Marks

Prelim: 30 Marks

JOURNAL:25 marks

Total: 75 Marks

External Assessment (Theory): 37 Marks

(University Examination)

REFERENCES:

- 1) U. Satyanarayan, Essentials of biochemistry, Books & allied (P) Ltd., Kolkata publisher, 2004.
2. Deb A.C.: Concepts of biochemistry (Theory & Practical) 1st edition, books & allied (P) Ltd. Publisher, Kolkata, 1999.
3. Deb. A.C. Fundamentals of biochemistry of biochemistry: 1st edition New central book Ag (P) Ltd., 2004.
4. Jacob Anthikad, Biochemistry for nurses; 2nd edition, Jaypee; 2001.
5. Gupta. R.C., Multiple choice questions in Biochemistry, 2nd edition, Jaypee, 2004.