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First Year P.B.B.Sc. Nursing

Subject code: 2
Subject: Biochemistry
Faculty: Ms. Vaishali R. Kherde

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**	**5-7**
	• 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 - Glycogenolosys - Pentose phosphate pathways (Hexose mono phosphate) ○ Regulation of blood glucose level Investigations and their interpretations	**3**	**13-15**
IV **Composition and metabolism of Lipids**	• Types, structure, composition and uses of fatty acids ○ Nomenclature, Roles and Prostaglandins	**1**	**16**
	• Metabolism of fatty acid ○ Breakdown	**1**	**17**

	○ Synthesis		
	• Metabolism of triacylglycerols	**1**	**18**
	• Cholesterol metabolism ○ Biosynthesis and its Regulation - Bile salts and bilirubin - Vitamin D - Steroid hormones,Lipoproteins and their functions : ○ VLDLs- IDLs, LDLs and HDLs ○ Transport of lipids ○ Atherosclerosis Investigations and their interpretations	**1**	**19**
V **Composition and metabolism of Amino acids and Proteins**	• Types, structure, composition and uses of Amino acids and Proteins	**1**	**20**
	• Metabolism of Amino acids and Proteins ○ Protein synthesis, targeting and glycosylation ○ Chromatography ○ Electrophoresis ○ Sequencing	**1**	**21**
	• Metabolism of Nitrogen ○ Fixation and Assimilation ○ Urea Cycle ○ Hemes and chlorophylls	**2**	**22-23**
	• Enzymes and co-enzymes ○ Classification ○ Properties ○ Kinetics and inhibition ○ Control Investigations and their interpretations.	**2**	**24-25**
VI **Composition of Vitamins and minerals**	• Vitamins and minerals: ○ Structure ○ Classification ○ Properties ○ Absorption ○ Storage & transportation Normal concentration Investigations and their interpretations	**1** **1**	**26** **27**
VII	• Immune response, Structure and classification of immunoglobins	**1**	**28**

Immunochemistry	• Mechanism of antibody production. Antigens: HLA typing.Free radical and Antoxidants	**1**	**29**
	• Specialised Protein: Collagen, Elastin, Keratin, Myosin, and Lens Protein. Electrophoretic and Quantitative determination of immunoglobins - ELISA etc. Investigation and their interpretations	**1**	**30**

EVALUATION:

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

SR NO	EXAMINATION	MARKS	TOTAL
1.	Unit test I (combined with nutrition 15 marks)	10	75
2.	Unit test II (combined with nutrition 15 marks)	10	
3.	Prelim (combined with nutrition 45 marks)	30	
4.	Journal	25	
5.	External Assessment (Theory) (University Examination) (combined with nutrition 45 marks)	30	55
6.	Internal Assessment	25	

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.