

Performa : Hindu College of Pharmacy				
Lesson Plan				
Name of the faculty		Shivam Rajput		
Discipline		Pharmacy		
Semester		2nd Year		
Subject		Biochemistry and Clinical Pathology		
Lesson plan Duration		25 weeks (August 20, 2024 to April 30, 2025)		
Work Load/week(In hour)		Lecture- 03; Practical- 09 Hrs		
Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1st (Aug 4th week)	1st	Introduction to biochemistry: Scope of biochemistry in Pharmacy	1st (Batch A)	Qualitative analysis of carbohydrates
	2nd	Cell and its biochemical organization.	2nd (Batch B)	----do----
	3rd	Carbohydrates-Definition, classification with examples, chemical Properties	3rd (Batch C)	----do----
2nd (Aug 5th week)	1st	Monosaccharides - Structure of glucose, fructose, and galactose	1st (Batch A)	Qualitative analysis of carbohydrates
	2nd	Disaccharides - structure of maltose, lactose, and Sucrose	2nd (Batch B)	----do----
	3rd	Polysaccharides - chemical nature of starch and Glycogen	3rd (Batch C)	----do----
3rd(Sep 2nd week)	1st	Qualitative tests and biological role of carbohydrates	1st (Batch A)	Qualitative analysis of carbohydrates
	2nd	Proteins-Definition, classification of proteins based on composition and solubility with examples	2nd (Batch B)	----do----
	3rd	Definition, classification of amino acids based on chemical nature and nutritional requirements with examples	3rd (Batch C)	----do----
4th(Sep 3rd week)	1st	Structure of proteins (four levels of organization of protein structure)	1st (Batch A)	Viva voce
	2nd	Qualitative tests and biological role of proteins and amino acids	2nd (Batch B)	----do----

	3rd	Diseases related to malnutrition of proteins.	3rd (Batch C)	----do----
5th(Sep4th week)	1st	Class Test	1st (Batch A)	Qualitative analysis of carbohydrates
	2nd	Lipids- Definition, classification with examples	2nd (Batch B)	----do----
	3rd	Structure and properties of triglycerides (oils and fats)	3rd (Batch C)	----do----
6th (Oct 3rd week)	1st	Fatty acid classification - Based on chemical and nutritional requirements with Examples	1st (Batch A)	Qualitative analysis of Proteins and amino acids
	2nd	Structure and functions of cholesterol in the body	2nd (Batch B)	----do----
	3rd	Lipoproteins - types, composition and functions in the Body	3rd (Batch C)	----do----
7th(Oct 4th week)	1st	Qualitative tests and functions of lipids	1st (Batch A)	Qualitative analysis of Proteins and amino acids
	2nd	Nucleic acids-Definition, purine and pyrimidine bases	2nd (Batch B)	----do----
	3rd	Components of nucleosides and nucleotides with examples	3rd (Batch C)	----do----
8th(Oct 5th week & Nov 1st week)	1st	Structure of DNA (Watson and Crick model)	1st (Batch A)	Viva Voce
	2nd	RNA and their functions	2nd (Batch B)	----do----
	3rd	Enzymes-Definition, properties and IUB and MB classification	3rd (Batch C)	----do----
9th(Nov 2nd week)	1st	Factors affecting enzyme activity	1st (Batch A)	Qualitative analysis of Proteins and amino acids
	2nd	Mechanism of action of enzymes, Enzyme inhibitors	2nd (Batch B)	----do----
	3rd	Therapeutic and pharmaceutical importance of Enzymes	3rd (Batch C)	----do----
10th(Nov 3rd week)	1st	Vitamins-Definition and classification with examples	1st (Batch A)	Qualitative analysis of Proteins and amino acids
	2nd	Sources, chemical nature, functions	2nd (Batch B)	

	3rd	Coenzyme form, recommended dietary requirements	3rd (Batch C)	----do----
11th(Nov 4th week)	1st	Deficiency diseases of fat	1st (Batch A)	Qualitative analysis of lipids
	2nd	Water-soluble vitamins	2nd (Batch B)	----do----
	3rd	Metabolism (Study of cycle/pathways without chemical structures)	3rd (Batch C)	----do----
12th(Nov 5th week)	1st	Metabolism of Carbohydrates: Glycolysis	1st (Batch A)	Qualitative analysis of lipids
	2nd	TCA cycle and glycogen metabolism, regulation of blood glucose	2nd (Batch B)	----do----
	3rd	Diseases related to abnormal metabolism of Carbohydrates	3rd (Batch C)	----do----
13th(Dec 1st week)	1st	Metabolism of lipids: Lipolysis, β -oxidation of Fatty acid	1st (Batch A)	Viva voce
	2nd	Palmitic acid, ketogenesis and ketolysis.	3rd (Batch C)	----do----
	3rd	Diseases related to abnormal metabolism of lipids such as Ketoacidosis, Fatty liver, Hypercholesterolemia		----do----
14th (Dec 2nd week)	1st	Metabolism of Amino acids Proteins: General reactions of amino acids	1st (Batch A)	Qualitative analysis of urine for normal and abnormal constituents
	2nd	Its significance– Transamination, deamination, Urea cycle	2nd (Batch B)	----do----
	3rd	Decarboxylation. Diseases related to abnormal metabolism of amino acids	3rd (Batch C)	----do----
15th(Dec 3rd week)	1st	Disorders of ammonia metabolism, phenylketonuria,	1st (Batch A)	Qualitative analysis of urine for normal and abnormal constituents
	2nd	Alkaptonuria	2nd (Batch B)	----do----
	3rd	Biological oxidation:	3rd (Batch C)	----do----
16th (Dec 4th week)	1st	Oxidative phosphorylation	1st (Batch A)	Qualitative analysis of urine for normal and abnormal constituents
	2nd	Revision	2nd (Batch B)	----do----
	3rd	Minerals: Types, Functions, Deficiency diseases	3rd (Batch C)	----do----

17 th (Jan 3 rd week)	1 st	Recommended dietary requirements	1 st (Batch A)	Qualitative analysis of urine for normal and abnormal constituents
	2 nd	Water and Electrolytes Distribution, functions of water in the body	2 nd (Batch B)	----do----
	3 rd	Water turnover and balance	3 rd (Batch C)	----do----
18 th (Jan 4 th week)	1 st	Electrolyte composition of the body fluids	1 st (Batch A)	Determination of constituents of urine (glucose, creatinine, chlorides)
	2 nd	Electrolyte composition of the body fluids	2 nd (Batch B)	----do----
	3 rd	Revision	3 rd (Batch C)	----do----
19 th (Jan 5 th week)	1 st	Dehydration, causes of dehydration and	1 st (Batch A)	Determination of constituents of urine (glucose, creatinine, chlorides)
	2 nd	Test	2 nd (Batch B)	----do----
	3 rd	Introduction to Biotechnology	3 rd (Batch C)	----do----
20 th (Feb 3 rd week)	1 st	Organ function tests Functions of kidney	1 st (Batch A)	Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT)
	2 nd	Organ function tests Functions of kidney	2 nd (Batch B)	----do----
	3 rd	Revision	3 rd (Batch C)	----do----
21 st (Feb 4 th week)	1 st	Clinical significances	1 st (Batch A)	Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT)
	2 nd	Routinely performed tests to assess the functions of kidney	2 nd (Batch B)	----do----
	3 rd	Class test	3 rd (Batch C)	----do----
22 nd (Feb 5 th week)	1 st	Functions of liver and routinely performed tests to assess the functions of liver	1 st (Batch A)	Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT)
	2 nd	Their clinical significance	2 nd (Batch B)	----do----
	3 rd	Lipid profile tests	3 rd (Batch C)	----do----
23 rd (Mar 2 nd week)	1 st	Its clinical significances	1 st (Batch A)	Determination of constituents of blood/serum (simulated)

				(Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT)
	2 nd	Revision	2 nd (Batch B)	--
	3 rd	Oral rehydration therapy	3 rd (Batch C)	----do----
24 th (Mar 3 rd week)	1 st	Dietary intake of electrolyte and Electrolyte balance	1 st (Batch A)	Viva voice
	2 nd	Dietary intake of electrolyte and Electrolyte balance	2 nd (Batch B)	----do----
	3 rd	Electron transport chain	3 rd (Batch C)	----do----
25 th (Mar 4 TH week)	1 st	Revision	1 st (Batch A)	Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT)
	2 nd	Jaundice.	2 nd (Batch B)	----do----
	3 rd	Platelets	3 rd (Batch C)	----do----
26 th (Mar 5 TH week)	1 st	Platelets	1 st (Batch A)	Determination of constituents of blood/serum (simulated) (Creatine, glucose, cholesterol, Calcium, Urea, SGOT/SGPT)
	2 nd	Introduction to Pathology of Blood and Urine	2 nd (Batch B)	----do----
	3 rd	Introduction to Pathology of Blood and Urine	3 rd (Batch C)	----do----
27 th (Apr 1 st week)	1 st	Lymphocytes	1 st (Batch A)	Viva voice
	2 nd	Class test	2 nd (Batch B)	----do----
	3 rd	Their role in health and disease	3 rd (Batch C)	----do----
28 th (Apr 3 rd week)	1 st	Erythrocytes	1 st (Batch A)	Study the hydrolysis of starch from acid and salivary amylase enzyme
	2 nd	Abnormal cells and their significance	2 nd (Batch B)	----do----
	3 rd	Revision	3 rd (Batch C)	----do----
29 th (Apr 4 TH week)	1 st	Normal and Abnormal constituents of Urine	1 st (Batch A)	Viva voice
	2 nd	Their Significance	2 nd (Batch B)	----do----

	3rd	Revision	3rd (Batch C)	----do----
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