

BS Chemistry Semester-V					
Programme	BS Chemistry	Course Code	CHEM-377	Credit Hours	1
Course Title	Carbohydrate (Lab)		Course Type	Major (Elective)	
Course Introduction					
This course is require to impart practical knowledge of different methods for qualitative and quantitative analysis of carbohydrates Qualitative and Quantitative tests of various Carbohydrates; Distinction between pentoses and hexoses, aldoses and Ketoses, reducing and non-reducing sugars, mono and polysaccharides. Qualitative tests for polysaccharides; starch, glycogen and cellulose. Extraction of starch from plant source and its confirmatory tests. Determination of sugar level in blood and urine. Estimation of glucose in urine.					
Learning Outcomes					
1- This course will provide practical knowledge and grounds for distinction between various carbohydrates. 2- In addition, it will help students to apply these practical methods on sugar level determination of human’s blood and urine. 3- These practical will given practical understanding about the carbohydrates					
Course Content			Assignments/Readings		
Week 1	Role of carbohydrates in the life and which kind of test are being in use to determine the different types of carbohydrates		Class base learning/test		
Week 2	Qualitative test; Distinction between pentoses and hexoses		Class base learning/test		
Week 3	Qualitative test; Distinction between aldoses and Ketoses		Class base learning/test		
Week 4	Qualitative test; Distinction between reducing and non-reducing sugars		Class base learning/test		
Week 5	Qualitative test; Distinction between mono and polysaccharides		Class base learning/test		
Week 6	Qualitative tests for polysaccharides; starch, glycogen		Class base learning/test		
Week 7	Discussion the practical and if need then repeat it		-		
Week 8	Midterm Exams		-		
Week 9	Qualitative tests for polysaccharides; cellulose		Class base learning/test		
Week 10	Extraction of starch from plant source		Class base learning/test		
Week 11	Confirmatory tests of starch extracted from plant sources		Class base learning/test		
Week 12	Determination of sugar level in blood		Class base learning/test		
Week 13	Determination of sugar level in urine		Class base learning/test		
Week 14	Estimation of glucose in urine		Class base learning/test		
Week 15	Discussion all practical if need then repeat		-		
Week 16	Final Term		-		
Reading Material					

1. Varley, H., Gowenlock, A. H., & Bell, P. G. (2022). *Practical clinical biochemistry* (8th ed.). CBS Publishers & Distributors.
2. Plummer, D. T. (2008). *An introduction to practical biochemistry* (3rd ed.). McGraw-Hill Education.
3. Gowenlock, A. H. (2009). *Varley's practical clinical biochemistry* (6th ed.). Arnold.
4. Williams, B. L., & Wilson, K. (2006). *Principles and techniques of practical biochemistry* (3rd ed.). Cambridge University Press.
5. Online literature as per direction of teacher

Teaching Learning Strategies

- Lecturing using white/black board/Multimedia
- Written Assignments/Quiz/Task/Presentation
- Discussion about practical
- Checking the results and discussion

Assignments: Types and Number with Calendar

Assignment, Quiz, Task, Presentation etc.