

Reg. No.:



Name:

University of Kerala

U8843

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

CHEMISTRY

UK2DSCCHE105 - BIOMOLECULES & BIOPHYSICAL CHEMISTRY - I

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark Each.Answer all questions

Qn No.	Question	CL	CO
1	Give the structure of glycine	RE	2
2	Draw the structure of furan	RE	4
3	What determines whether a sugar is an aldose or a ketose?	UN	1
4	Differentiate nucleotide and nucleoside	UN	2
5	Name one optical property of a colloidal solution.	UN	3
6	Differentiate photosynthesis and respiration	UN	4

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Compare isotonic, hypotonic and hypertonic solutions.	UN	3
8	Discuss the reaction of glucose with phenylhydrazine	UN	1
9	Predict what happens when amino acids are treated with (i)HCl (ii) NaOH	AP	2
10	Explain the impact of carbon monoxide poisoning on the oxygen transport system.	AP	4

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Illustrate any two reactions in which a reducing sugar is oxidized while reducing another compound. Analyse the redox changes happening to both the substances. OR B)	AP	1, 1

Qn No.	Question	CL	CO
	How can epimerization be applied to convert D-glucose into D- Mannose ?		
12	A) Analyse the structural organization of proteins correlates with their functional properties in biological systems. OR B) Compare the primary, secondary, and tertiary structures of proteins .	AN	2, 2
13	A) Derive the Henderson-Hasselbalch equation and explain its significance OR B) Compare the different concentration terms in solution chemistry. A chemist prepares a 500 mL solution by dissolving 10.5 g of sodium chloride (NaCl) in water. Calculate the molarity of the solution	EV	3, 3
14	A) A farmer wants to improve soil fertility without using chemical fertilizers. How can you apply your knowledge of nitrogen fixation to help them achieve this? OR B) Design an educational poster for rural communities to give awareness about the importance of calcium and magnesium rich food in diet. What key messages would you include to ensure that it is effective and engaging?	CR	4, 4