

Reg. No.:



W6959

Name:

University of Kerala

Third Semester FYUGP Degree Examination, November 2025

Discipline Specific Core Course

CHEMISTRY

UK3DSCCHE205 - BIOMOLECULES & BIOPHYSICAL CHEMISTRY - II

Academic Level: 200-299

2024 Admission

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 one example for zero order reaction	RE	2
2	Name the most abundant animal sterol.	RE	1
3	Specify how photosynthesis acts as a process for solar energy harvesting.	UN	4
4	Give two chemical properties of fatty acids	UN	1
5	Differentiate between catabolism and anabolism	UN	3
6	Define order of the reaction.	UN	2

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	Discuss the effect of temperature on reaction rate with suitable example.	UN	2
8	Classify different types of thermodynamic systems with examples.	UN	4
9	Illustrate the urea cycle	AP	3
10	Explain saponification number and acid number of fats.	AP	1

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)	AP	1, 1

Qn No.	Question	CL	CO
	Apply the concept of enzyme specificity to discuss how enzymes are used in designing targeted therapeutic drugs. OR B) Compare and contrast the different classes of enzymes, providing a specific example for each class and explaining the reaction they catalyze.		
12	A) Differentiate between the lock-and-key model and the induced fit model of enzyme action, highlighting their strengths and limitations. OR B) For a first-order reaction the rate constant $k = 0.693 \text{ min}^{-1}$. (a) Calculate the time required for 75% of the reactant to decompose. (b) What is the half life period in this case?	AN	2, 2
13	A) Describe the process of Krebs cycle and explain its energy yield. OR B) Prepare a note on metabolism of triglycerides.	EV	3, 3
14	A) Derive the relationship between the standard free energy change (ΔG°) and the equilibrium constant (K) for a chemical reaction. Explain the significance of this relationship in predicting the spontaneity and equilibrium position of a reaction. OR B) Develop a detailed explanation about how ATP acts as a universal currency of free energy in biological systems.	CR	4, 4