

Reg. No.:



Name:

University of Kerala

U9333

Second Semester FYUGP Degree Examination, April 2025

Multi-Disciplinary course

POLYMER CHEMISTRY

UK2MDCPOC101 - BIOPOLYMERS AND BIOMATERIALS

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	What is PLA	RE	2
2	Write the monomer of natural rubber	RE	1
3	What are polysaccharides	UN	2
4	Give the main components of biodegradable hydrogels	UN	4
5	Define biopolymers	UN	1
6	Give the primary difference between natural and synthetic biomaterials	UN	3

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	What are biopolymers and how do they differ from synthetic polymers	UN	1
8	Discuss the physical properties of aliphatic polyesters	UN	2
9	A company wants to develop a biodegradable plastic film for packaging applications. What biomaterial would you recommend and why?	AP	3
10	Illustrate the key characteristics of mechanically robust gels	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) A Patient requires a pacemaker implant, what type of material would use for implant casing and why? OR B) Illustrate host reactions to biological materials.	AP	3, 3
12	A) How would you classify biopolymers based on their origin? What are the main sources of biopolymers OR B) Compare natural rubber and synthetic rubber in terms of their function and property	AN	1, 1
13	A) Evaluate the potential of mechanically robust gels use in biomedical devices OR B) Evaluate the technically important form of polymers called hydrogels, with reference to their synthesis, characterization, and properties.	EV	4, 4

Qn No.	Question	CL	CO
14	A) Design a diagram that illustrates the structure of DNA, showing sugar, phosphate, and nitrogenous bases OR B) Explain different types of RNA—mRNA, tRNA, and rRNA—and illustrates how each function during protein synthesis.	CR	2, 2