22CHU519AN

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Branch - **CHEMISTRY**

MAJOR ELECTIVE COURSE – I : POLYMER CHEMISTRY

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	An example for synthetic polymer is a) Cotton b) Silk c) Rubber d) Nylon	K1	CO1
	2	In the equation $R_i = 2fK_d[I]$, the value of f is usually between _____. a) 0.6 & 1.0 b) 0.4 & 1.0 c) 0.6 & 2.0 d) 0.4 & 2.0	K2	CO1
2	3	In which polymerization technique, uncontrolled exothermic reaction takes place? a) Solution b) Bulk c) Suspension d) Emulsion	K1	CO2
	4	Name the phenomenon of depressing the freezing point of a liquid by the addition of a solute. a) Osmometry b) Ebulliometry c) Cryoscopy d) Viscometry	K2	CO2
3	5	Select the polymer, where R groups located randomly. a) Isotactic b) Syndiotactic c) Atactic d) Synthetic	K1	CO3
	6	Tricresyl phosphate, plasticizer is used to decrease the T_g value of _____. a) PVA b) PVC c) PMMA d) Teflon	K2	CO3
4	7	Name the catalyst used in the polymerization of propylene. a) Ziegler-Natta b) Wilkinson c) Raney Nickel d) Palladium	K1	CO4
	8	When acetylene reacts with hydrogen chloride which polymer is formed? a) PMMA b) PVC c) Polyester d) Teflon	K2	CO4
5	9	Which polymer is thermally stable? a) Polyethylene b) Polypropylene c) Polyisobutylene d) Polystyrene	K1	CO5
	10	Name the process of making fibres from fibre forming materials. a) Casting b) Moulding c) Foaming d) Spinning	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Classify polymers based on structure and application.	K2	CO1
		(OR)		
	11.b.	Interpret the kinetics of polyester formation.		
2	12.a.	Describe any two polymerization techniques.	K2	CO2
		(OR)		
	12.b.	Infer the molecular weight determination of polymers by end group analysis.		
3	13.a.	Compile the electrical properties of polymers.	K6	CO3
		(OR)		
	13.b.	Propose the stereochemistry of substituted polyethylene.		
4	14.a.	Discuss the preparation, properties and uses of Neoprene.	K6	CO4
		(OR)		
	14.b.	Elaborate the preparation, properties and uses of Teflon.		
5	15.a.	List the polymer additives with examples.	K4	CO5
		(OR)		
	15.b.	Discuss in detail the mechanism of polymer degradation.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Propose the mechanism of ionic polymerization.	K6	CO1
2	17	Estimate the molecular weight of polymers by number average and weight average method.	K6	CO2
3	18	Describe the preparation and properties of polyaniline and polyacetylene.	K6	CO3
4	19	Discuss the structure and applications of starch and cellulose.	K6	CO4
5	20	Explain with neat diagram any two moulding techniques of polymers.	K5	CO5

Z-Z-Z END