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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2025.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., CHEMISTRY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
VI	PART-III	CORE ELECTIVE	U21CH6E2A	POLYMER CHEMISTRY

Date & Session: 10.11.2025/FN

Time: 3 hours

Maximum: 75 Marks

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions.
CO1	K1	1.	Polymerisation is generally _____. a) an exothermic reaction b) an endothermic reaction c) dehydration reaction d) an oxidation reaction
CO1	K2	2.	An irreversible plastic is called _____. a) Thermoplastic b) Thermosetting plastic c) Elastomers d) heteropolymer
CO2	K1	3.	Weight average molecular mass of macromolecules is determined by _____. a) Sedimentation equilibrium method b) Light scattering method c) both a and b d) Osmotic pressure method
CO2	K2	4.	The number average molecular weight of a polymer containing equal number of fragments with molecular weights 70,000 and 30,000 is _____. a) 40,000 b) 50,000 c) 58,000 d) 100,000
CO3	K1	5.	Polystyrene and PMMA can be moulded by _____. a) injection moulding b) compression moulding c) extrusion d) none
CO3	K2	6.	Example of heterogeneous polymerisation _____. a) Mass polymerisation b) Emulsion polymerisation c) Solution polymerisation d) Addition polymerisation
CO4	K1	7.	Which one is a raw material used in preparing nylon – 66? a) Butadiene b) Adipic acid c) Styrene d) Phenol
CO4	K2	8.	Which of the following statements regarding polyamides is /are true? a) they are crystalline structure b) They are hygroscopic c) Their MP is abrupt or sharp d) All the above statements.
CO5	K1	9.	Conducting polymers possess _____. a) Pi-electron b) Sigma-electron c) Conjugated system of pi-electron d) None of these
CO5	K2	10.	Chondroitin sulphate is a component of _____. a) Artificial heart b) Artificial kidney c) Artificial skin d) Dental polymer

Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	11a.	Define the following with examples. a) Homopolymers and b) Heterochain polymers. (OR)
CO1	K3	11b.	Discuss the types of polycondensation with suitable examples.
CO2	K3	12a.	What is polymer degradation? Describe the types of polymer degradation. (OR)
CO2	K3	12b.	Write fully about thermal degradation of polymers.
CO3	K4	13a.	Explain blow moulding with a diagram. (OR)
CO3	K4	13b.	Sketch an injection mould and show how moulding is done.
CO4	K4	14a.	Discuss the preparation, properties and uses of polypropylene. (OR)
CO4	K4	14b.	Write about the preparation, properties and uses of Nylon-6,6. Comment on the intermolecular attraction in Nylon-6,6.
CO5	K5	15a.	Evaluate the impact of polymer-based artificial blood cells in medical treatments. (OR)
CO5	K5	15b.	Assess the importance of dental polymers in restorative dentistry.

Course Outcome	Bloom's K-level	Q. No.	SECTION – C (5 X 8 = 40 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	16a.	Discuss the general characteristics of polymers. (OR)
CO1	K3	16b.	Explain addition polymerization and condensation polymerization with suitable examples.
CO2	K4	17a.	Deduce the expressions for number average and weight average molecular weights. (OR)
CO2	K4	17b.	Explain the Chemistry of vulcanisation.
CO3	K4	18a.	Discuss in detail about the homogeneous polymerisation techniques. (OR)
CO3	K4	18b.	Explain calendaring technique with a suitable diagram.
CO4	K5	19a.	Give a comprehensive account of preparation, properties and uses of polyolefins – HDPE, LDPE and LLDPE. (OR)
CO4	K5	19b.	Discuss in detail about the properties, grades and uses of PVC.
CO5	K5	20a.	Critically evaluate the use of biopolymers in biomedical applications. (OR)
CO5	K5	20b.	Discuss the preparation of polysulphur nitride and polyphenylene conducting polymers.