

M.Sc. Sem-4 Examination

508

Polymer Science

Time : 2-00 Hours]

April 2022

[Max. Marks : 50

Instructions: All Questions in Section I carry equal marks. Attempt any THREE questions in Section I. Question IX in Section II is COMPULSORY

		Section-I (42 marks)	Mark
Q-I	A	What are the Requirements for polymer to become flame retardant material?	7
	B	Explain conduction mechanism for Conducting polymer.	7
Q-II	A	Explain Theories of Fire Retardancy.	7
	B	Describe conducting properties of Polyacetylene and Polyparaphynelene.	7
Q-III	A	What are Piezoelectricity and Pyroelectricity properties of polymer?	7
	B	Elaborate LOI and HDT test for thermal properties of polymer.	7
Q-IV	A	Describe aromatic polymer for high temperature and flame retardant application.	7
	B	How Nonlinear Optical (NLO) work? Describe use of polymer in NLO.	7
Q-V	A	What is Ionomer? Describe common methods for synthesis of ionic polymer.	7
	B	Define the term Polyelectrolyte. Describe uses of polyelectrolyte in industries.	7
Q-VI	A	Write structure of Nefion and Flemion ionic Polymer. Describe their uses.	7
	B	Write short not on: Ion-Exchange resin and its applications.	7
Q-VII	A	Give main point of Guidelines for Material Selection in medical science applications. Enlist any five engineering plastics used in biomedical applications.	7
	B	Describe about Polymer Impregnated Concrete.	7
Q-VIII	A	Define the term Rocket Propellants. What is the benefit of polymer to use as binders for rocket propellants?	7
	B	Explain uses of polymer in electrical and electronic industries.	7
Q-IX		Section-II (8 marks)	
1		PVC called self-extinguishing, because A. It is soft. B. It is linear polymer. C. It does not catch fire easily. D. It increases fire.	1
2		Identify Liquid Crystal Polymer (LCP). A. Poly carbonate B. PEEK C. Kevlar D. Nylon 6 6	1
3		Which fillers is use in Conduction Polymer? A. Phthalates B. Metal Flakes C. Sb ₂ O ₃ D. All of above	1
4		The aim of polymer to use as binders for rocket propellants A. It binds propellant. B. It decreases sensitivity of propellant. C. It binds and stimulate explosion. D. It defused explosion of propellants.	1
5		Which material is use in Li-Polymer battery? A. Polycarbonate B. Polyurathanes C. Polyphophozene D. All of above	1
6		Which monomer used as Polymer Impregnated Concrete? A. Methyl methacrylate B. Acrylonitrile C. T-Butyl Styrene D. All of above	1
7		Nonlinear Optics polymers used in _____ A. frequency doublers B. Wave guides C. Q-switches D. All of above	1
8		Normally Polyvinylidene fluoride (PVDF) is _____ A. Piezoelectricity B. Pyroelectricity C. Ferroelectricity D. All of above	1