

M.Sc. (Sem.-II) Examination

407

CHEP : Polymer Structure Properties & Relationship

Time : 3 Hours]

May-2017

[Max. Marks : 70

Q-1	A	How do Branching, Cross linking, facility affect polymer properties? Or	[7]
Q-1	A	How does Amorphous Polymer differ from Crystalline Polymer in terms of Mechanical properties?	[7]
Q-1	B	Explain in detail: Coefficient of Linear Thermal Expansion and Volumetric Thermal expansion for Polymers. Or	[7]
Q-1	B	Describe Fringed Micelle Theory and give its significance.	[7]
Q-2	A	How will you predict Solubility Parameter of Polymers? Or	[7]
Q-2	A	How does chemical structure affect Stress-Strain relationships in various types of polymers?	[7]
Q-2	B	Write note on Chemical Resistant and Toxicity of Polymers. Or	[7]
Q-2	B	Write Note on: Flame Retardancy and Water Repellant Properties of Polymer.	[7]
Q-3	A	What is Glass Transition Temperature (T _g)? Explain about factors affecting on it in detail. Or	[7]
Q-3	A	What is β-transition? Comment on T _g /T _m ratio on polymers.	[7]
Q-3	B	Define the following terms: Heat Capacity, Specific Heat, Latent Heat of Crystallization and Fusion. Or	[7]
Q-3	B	Explain instrumental Technique to calculate Heat Capacities and Glass transition Temperature (T _g) of Polymers.	[7]
Q-4	A	Define the following terms: Clarity, Transparency, Haze, Transmittance, Reflectance, and Gloss and their relationship. Or	[7]
Q-4	A	Explain Role of Additives on Electrical Properties of Polymer.	[7]
Q-4	B	What are Volume Resistivity and Surface Resistivity? Explain in detail. Or	[7]
Q-4	B	Explain following terms for polymer: Power Factor, Dissipation Factor, and Loss Factor.	[7]
Q-5		Answer the following questions a) How Tacticity of Polymer effect its properties? b) What is Stress Relaxation? c) Is it possible to obtain 100% crystalline and 100% amorphous polymers? Explain. d) What are Supramolecular polymers? e) What are Spherulites? f) PE and PP are more flexible, compare to PVC, at room temperature. Justify g) Write chemical structure of Polymethylmethacrylate (PMMA). Why PMMA is transparent? Explain	[14]