

Syllabus for the Ph.D. (Tech.) Entrance Test for Polymer Engineering & Technology

Written test of one hour duration with 70 marks

- ❖ **Basics of polymer** : Types of polymer, Techniques of polymerization, Types of copolymer, Concept of reactivity ratio, Natural polymers, Addition and condensation polymer, Polymer alloys and blends, Properties of commodity and engineering polymers, Thermosetting polymers and their applications, Elastomers, TPEs..
- ❖ **Evaluation of polymers** : Mechanical, Rheological, Optical, Morphological, Thermal, Barrier, Weather resistance properties.
- ❖ **Additives**: Initiator, Inhibitor, Retarder, Plasticizer, Heat stabilizers, Lubricants, UV-stabilizers, Pigments and Extenders, Flame retardants and blowing agents
- ❖ **Processing of polymers** : Compression, Transfer, Injection, Extrusion, Pultrusion, Thermoforming, Calendaring, Reaction Injection moulding
- ❖ **Speciality Polymers**: Polyelectrolytic Membranes, electroactive Polymers, Various stimuli sensitive Polymers.
- ❖ **Analysis and characterisation of Polymers**. Viz Thermal properties, rheological properties, physical constants of polymers, molecular weight, Electrical properties, mechanical properties etc.