

Syllabus for the Ph.D. (Tech.) Entrance Test for Surface Coating Technology

Written test of one hour duration with 70 marks

- ❖ **Basics of Resins:** Addition and condensation polymerization, Types of Polymer, Techniques of Polymerization, Copolymerization, Types of Copolymers, Concept of Reactivity, Crosslinking of Polymers, Natural Resins and synthetic Polymers, Water borne coating, High solids coating, Radiation cure coatings, Powder coatings, High performance coating, Manufacturing of paints.
- ❖ **Characterization:** Mechanical, Rheological, Optical, Morphological, Topological, Thermal, barrier, Corrosion, Chemical and weather resistance properties.
- ❖ **Additives:** Wetting and dispersing agents, Viscosity control, Anti-skin, Dryers, Mating agents, Flow and leveling agents, Thyrotrophic agents, Mar resistance, Anti-foam, Anti-settling, desiccants, Anti-rust, Protective colloids, Biocide, Adhesion promoter, UV-Stabilizers, Initiator, Blow, Plasticizers, etc
- ❖ **Application Techniques:** Brush, Screen printing, Spray, powder, Dip-coating, ED, Fluidized Bed, Electrostatic spray gun.
- ❖ **Solvents:** Theory of solutions, Solvents, True and diluents, Types of solvents, Solvents use in paint and printing inks.
- ❖ **Pigments:** Extenders, Types of pigments, Pigmentary properties.
- ❖ Green Coatings
- ❖ High Solid Coatings
- ❖ Industrial Coatings
- ❖ High Temperature stable coating
- ❖ Paint film defects and remedies
- ❖ Characterisation of Paints