

## OET 3.1: Polymer Science and Technology:

Max. 100 marks, 64 hours, 4 credits.

### Polymers:

25 hours.

Basic concepts of polymers, classification of polymers-linear, branched, cross-linked polymers, co-polymers, polymer blends and interpenetrating networks. Understanding the molecular weight of polymers-number average/weight average/z-average, viscosity average. degree of polymerizations. Viscosity method for molecular weight determination. techniques for polymerization-bulk, solution, suspension, emulsion. Any one manufacturing method, important properties and applications of few commercial polymers- viz- polyethylene, polyvinylchloride, polymethyl acrylate (PMMA).

### The physical properties of polymers

10 hours.

Amorphous, crystalline and rubbery polymers. determination of crystallinity. The amorphous state- regions of viscoelastic behavior, measurement of glass transition temperature employing thermal techniques. The rubbery state- structure – property relationship. crosslinking and vulcanization in rubbers.

### Identification and Testing of Plastics

20Hours.

Introduction, Setting-up in-house identification facilities, Identification of plastics by simple physical and Chemical methods of typical polymers viz., Thermoplastics (PE, PVC, PMMA) ABS rubbers, acrylics, poly urethane and Cellulose acetate.

OET 3.1: Polymer Science & Technology  
(L:T:P = 0:0:2) 50 Marks  
Based on OET 3.1

BSU  
1/1/2