

**CENTRE FOR POLYMER SCIENCE AND ENGINEERING**

**PTL 711 Engineering Plastics**  
*Major Test*

Max.marks 80  
Date: 4/5/07  
Time :3.30-5.30  
Room No.: MS 418

Attempt all questions

- Q 1:(a) Suggest methods for the preparation of polyurethanes which has melting point above 200<sup>0</sup>C and give reasons for the same.
- (b) Why metal salts are preferred catalyst for the preparation of polyurethanes?
- © List the advantages of RIM over conventional injection moulding.
- (d) How can you prepare foams with improved flame resistance for insulation purpose?
- (e) Describe briefly the polyols used for the preparation of foams using one shot process and discuss their advantages or disadvantages and methods to overcome.

(5+5+2+3+5)

- Q2. (a) List advantages of vinyl ester resins over the unsaturated polyesters
- (b) What techniques would you employ to characterize an epoxy resin.
- (c) Calculate the amount of diaminodiphenyl sulfone needed to cross link diglycidyl ether of bisphenol-A

(2x3=6)

- Q 3. (a) Describe the methods used for the preparation of chlorosilanes .Which method is preferred and why?
- (b) Describe the preparation of silicon fluids and their applications.

(5+5)

Q4. Write short notes : (any four)

- (i) RTV-I and RTV II
- (ii) PMR resins
- (iii) Teflon AF
- (iv) Thermoplastic Polyurethanes
- (v) FEP-resins

(20)

**Q5** Suggest the materials for following applications and justify your answer:

- (i) Wire and cable insulation for data networks and optical fibre insulation
- (ii) pyroelectric detectors
- (iii) water repellent finishes for natural and synthetic textiles
- (iv) Antifoaming agents
- (v) Body implants for cosmetic surgery
- (vi) Flexible moulds for craft work

(10)

**Q 6**

- (a) State merits and demerits of polycarbonate over polyolefins such as PE, PS, PVC
- (b) Why copolymer of 4-hydroxy benzoic acid, ethylene glycol and terephthalic acid is classified as an Engineering plastic whereas PET is a general purpose plastic
- (c) Differentiate between Tefzel and Tedlar

(2 X 3=6)

**Q 7**

- (a) Discuss the importance of multilayered films in the field of packaging. How they can be prepared and what are its disadvantages?
- (b) Explain the importance of recyclability. What are its limitations and how can we overcome?

(5+3)