CENTRE FOR POLYMER SCIENCE AND ENGINEERING

PTL711, Engineering Plastics and Specialty Polymers

Major Examination

Date: 29/04/08
Time: 3.30 P.M

1. How will you obtain the following
   (a) Unsaturated polyester resin with improved heat resistance
   (b) Transparent USP resin with self extinguishing characteristics
   (c) Allymer CR 39

   (3+3+3)

2. Give salient features of the following materials and list at-least two applications of each
   (a) PEN
   (b) KODAR PETG

   (3+3)

3. (a) Differentiate the behavior of melt at rest, during shear and on cooling of PET with Xyder.
   (b) How can you improve the tractability of liquid crystalline polymers
   (c) Differentiate between Xyder and Vectra
   (d) List the properties of LCP which makes them to classify as engineering plastics
   (e) Requirement for the material to behave as LCP

   (5+5+5+5+5)

4. (a) What happens when isocyanate reacts with H_2O, amines urea and urethane linkages
   (b) Wastage reactions of isocyanate

   (4+2)

5. Write short notes on:
   (a) Thermoplastic polyurethanes
   (b) Room temperature vulcanizing silicone rubber
   (c) PPQ resins

   (10)

6. (a) List at-least five unique characteristics of silicone polymers

   (b) Describe the various methods used for the preparation of chlorosilanes. Which method you will choose and why?
   (c) What do you understand by the term MQ, PVMQ, FVMQ, bouncing putty.

   (3+5+5)

7. (a) How will you process PTFE? In what way it is different for the processing of thermoplastics? List its advantages and disadvantages.

(b) Differentiate between FEP, ETFE, ECTFE, Teflon AF in terms of compositions, processing behavior and properties and give at-least two applications of each.

(5+10)

8. Name the polymer for following applications and give reason for your choice
(a) Corrosive resistant coatings
(b) Ash trays in the automotive
(c) Baby food packaging bottle
(d) Optical fibres
(e) Helicopter tailplanes
(f) Nuclear plants

(6)