

Model Question Paper
VIII Sem. B. Tech. Polymer Engineering Degree Examination
Mahatma Gandhi University
PO 010 803: Speciality Polymers

Time: 3Hours
100

Maximum Marks:

Part A

(Answer *all* questions)
(Each question carries **3** marks)

1. What are the structural requirements for high temperature resistance of polymers?
2. With an example define conducting polymers
3. Define photoresist with its importance
4. With an example define ionic polymers
5. What is meant by liquid crystalline behavior? What type of polymers exhibit this phenomenon?

(3x5 =15)

Part B

(Answer *all* questions)
(Each question carries **5** marks)

6. What are the general methods to improve the high temperature resistance of polymers?
7. Briefly define the conduction mechanism in polymers
8. Define the nonlinear optical properties of polymers
9. Briefly mention on the classification of ionic polymers
10. What are the different types of LCPs

(5x5 =25)

Part C

(Answer either *a* **OR** *b*)
(Each question carries **12** marks)

11(a) Discuss on:

- (i) Burning mechanism of polymers (ii) fluoropolymers (iii) polysulfones
(6+3+3)

OR

(b) Write notes on:

- (i) Need for high temperature resistant polymers
- (ii) LOI
- (iii) Polyimides

12(a) Discuss on the major electrical and electronic properties of polymers

OR

(b) Write notes on:

- (i) Applications of conducting polymers
- (ii) Polypyrrole
- (iii) Piezoelectric polymers

13 (a) Discuss on semiconductor fabrication by the use of negative working and positive working photoresist

OR

(b) Write notes on:

- (i) electron beam lithography
- (ii) optical fibre telecommunication cable (6+6)

14(a) Discuss on the important physical properties and major industrial applications of ionic polymers

OR

(b) Write notes on:

- (i) ionomers based on polystyrene
- (ii) elastomeric ionomers
- (iii) ionomers based on PTFE

15(a) why polymers show liquid crystalline behavior? What are the important properties and applications of LCPs

OR

(b) Write notes on LCPs based on:

- (i) organometallic polymers
- (ii) inorganic polymers

(12x5 =60)