

AU – 2709

Fifth Semester B. Tech. (Polymer Technology) Examination

ENGINEERING PLASTICS AND SPECIALITY POLYMERS

Paper – 5 PP 03

(USC – 11117)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Answer **Three** questions from Section A and **Three** questions from Section B.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data wherever necessary.
(4) Diagrams and Chemical equations should be given wherever necessary.
(5) Illustrate your answer wherever necessary with the help of neat sketches.
(6) Discuss the reaction, mechanism wherever necessary.
(7) Use of cell phone is strictly prohibited in exam.
(8) Use pen of Blue/Black ink/refill only for writing the answer book.

SECTION A

1. (a) What are the liquid crystalline polymers ? Discuss the characteristics and applications of liquid crystalline polymers. 7
- (b) Explain the theories of liquid crystallinity. 6

OR

2. (a) Explain the structure, property and relationship of liquid crystalline polymers. 7
 - (b) Discuss the rheology of liquid crystalline polymers. 6
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3. (a) What are the structural requirements for polymer to act as a conductor ? Explain in brief the intrinsic conducting polymers. 7
 - (b) Discuss in detail the band theory for conducting polymers. 7

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OR

4. (a) Explain the doping of polymeric systems with the help of suitable example. 7
(b) Discuss in detail the band theory for conducting polymers. 7
5. Explain in detail the synthesis, properties and applications of heat resistant engineering plastic blends. 13

OR

6. (a) Explain the structural requirements for any polymeric material to act as heat resistant material. 6
(b) Discuss the preparation of heat resistant polyamide material. 7

SECTION B

7. (a) What do you mean by photosensitive polymer ? Explain the synthesis and curing mechanism of any one of the photosensitive polymer. 7
(b) Discuss in detail the preparation and properties of any one water soluble polymer. 6

OR

8. (a) What do you mean by polymer coating additives ? State the requirement for polymer to work as coating additives. 6
(b) What are the types of polymeric membrane ? Give the characteristics and applications of polymer membrane. 7
9. (a) Explain in detail the synthesis and properties of any one synthetic biopolymers. 7
(b) Discuss in detail the applications of biopolymers for bioassays and biocatalyst. 7

OR

10. (a) Discuss in detail the mechanism of biodegradation of biopolymers. 7
(b) Explain the significance and applications of biopolymers for medical or orthopedic applications. 7
11. (a) What do you mean by light emitting polymers? Give the properties and applications of light emitting polymers. 6
(b) Explain the applications of speciality polymers in following areas :—
(i) Agricultural Application
(ii) Automobile Application. 7

OR

12. (a) Discuss the properties and application of ion exchange resin. 6
(b) Discuss the properties and applications of polymers for membrane made from speciality polymers. 7



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