

**SIXTH SEMESTER DIPLOMA EXAMINATION IN POLYMER
TECHNOLOGY**

SPECIALITY POLYMERS

Time:3 hours

Max marks:100

Part A (Answer the following questions in one or two sentences only)

1.

- a) Write the structure and properties of fluoro polymers?
- b) State the differences between n- doping & p-doping of a conducting material?
- c) What are the major features of synthetic ionic polymers?
- d) What are the components of an optical fibre cables?
- e) How can an unsaturated poly ester resin converted to cross linked thermoset material? (2x5=10)

Part B

(Note: Answer any five full questions. All questions carry equal marks)

II.

- a) What are the factors affecting the thermal stability of polymers?
- b) Explain the preparation and structural properties of poly sulphons used as a fire resistant material?
- c) State the main application of poly paraphenylene?
- d) Describe the classification of ionomers?
- e) What are the ingredients of polymer impregnated concrete(PIC)?
- f) Explain the advantages of glass reinforced concrete over conventional concrete?
- g) Explain the photoconducting mechanism polymers with examples?

(6 x 5=30)

Part C

(Answer any 1 full question selecting from each module)

Module I

III.

- a) Explain the methods for improving the performance of polymers of high temperature use? (8)
- b) Explain the properties and major application of polyetheretherketones(PEEK)? (7)

OR

IV.

- a) Describe aromatic polymers used in high temperature applications?(8)
- b) What are the different types of polyamides & its properties used in high temperature applications? (7)

Module II

V.

- a) Describe the electrical and electronic properties of polymers? (8)
- b) Explain the conducting mechanism of polymers? (7)

OR

VI

- a) Explain the preparation ,structure & properties of polyacetylenes?
- b) Describe organo metallic polymers used in electrical and electronic applications?

Module III

VII

- a) Describe the classification of ionomers? (5)
- b) What are the elastomeric ionomers used in chemical resistant applications? (5)
- c) What are the ionomers based on polystyrene? (5)

OR

VIII

- a) Explain the ion exchange membrane system for desalination of water with help of a sketch? (10)
- b) Explain the preparation & properties of poly tetra fluoro ethylene(PTFE)? (5)

Module IV

IX

- a) What are the characteristic properties of polymer concrete? (5)
- b) Explain the preparation & properties of HTPB as propellants? (5)
- c) Explain the production process of optical fibre cable(OFC)? (5)

OR

X

- a) Describe the production and properties of polymer impregnated concrete ? (8)
- b) Write the polymers used for biomedical applications with examples (7)