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(REVISION — 2015)

Reg. No. .....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

SPECIALITY POLYMERS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Give two examples each for heat and fire resistant polymers.
2. Polypyrrole shows electrical conductivity. Why ?
3. What is meant by piezoelectric polymers ?
4. What are ionomers ?
5. Define polymer impregnated concrete. (5 × 2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain the thermal stability of fluoro polymers with respect to its structure.
2. Describe the structures, properties and applications of polyphenylene sulphide.
3. Explain the mechanism of conductivity of polyacetylene.
4. Explain the preparation and properties of organo metallic polymers.
5. What are nano polymers ? Explain its advantages.
6. Explain the bio medical applications of polymers with examples.
7. Describe the method of wave signal communication in optical fibre. (5 × 6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Explain the different factors affecting the thermal stability and fire resistance of Polymers. 8

(b) Describe the structure, properties and application of polysulphones. 7

OR

IV (a) Explain the different methods of improving the thermal properties of polymers. 8

(b) Explain the thermal behavior of polyesters and polyketones. 7

UNIT — II

V (a) Explain the electrical and electronic applications of polymers. 8

(b) Describe the preparation, properties and application of polypyrrole. 7

OR

VI (a) Explain the photoconductivity of polymers with examples. 8

(b) Explain the photo resists for semi conductor application. 7

UNIT — III

VII (a) Explain the preparation, properties and application of ionomers based on polystyrene. 8

(b) Explain the role of nano materials with its advantages and application in polymer field. 7

OR

VIII (a) Explain the polyelectrolyte for ion exchangers with suitable illustrations. 8

(b) Explain the preparation, properties and applications of PTFE based ionomers. 7

UNIT — IV

IX (a) Explain the production of OFC fibers used in telecommunication cables. State its advantages also. 8

(b) Explain the role of polymers with examples as rocket propellants. 7

OR

X (a) Explain the production and properties of polymer impregnated concrete. 8

(b) Describe the production and properties of Kevlar fibres. 7