9. (a) Explain the following processing techniques :

    (i)   blow moulding   (5)

    (ii) extrusion moulding.   (5)

                        Or

    (b) Describe industrial applications of the following processing techniques :

    (i)   thermoforming   (5)

    (ii) reinforcing and fibre spinning.   (5)

10. (a) Explain the preparation and applications of epoxy resins and silicone polymers.

                        Or

    (b) Explain the bio-medical applications of polymer.

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S.No. 353

17PCHE01/ 17POCE01

(For the candidates admitted from 2017–2018 onwards)

M.Sc. DEGREE EXAMINATION, APRIL/MAY 2018.

First Semester

Chemistry

POLYMER CHEMISTRY

(Common for Organic Chemistry)

Time : Three hours   Maximum : 75 marks

SECTION A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Define the following :

    (i)   polymer $(2\frac{1}{2})$

    (ii) degree of polymerization. $(2\frac{1}{2})$

                        Or

    (b) Explain the condensation polymerization with examples.   (5)

2. (a) Explain the monometallic mechanism of co-ordination polymers. (5)

Or

(b) Describe the importance of Zeigler-Netta catalyst. (5)

3. (a) Mention the relationship between T_m and T_g. (5)

Or

(b) Define the following :

(i) Weight average molecular weight $(2\frac{1}{2})$

(ii) Viscosity average molecular weight $(2\frac{1}{2})$

4. (a) Explain the following terms :

(i) fibres $(2\frac{1}{2})$

(ii) elastomers. $(2\frac{1}{2})$

Or

(b) Describe in detail about the diecasting. (5)

5. (a) Describe the preparation and applications of polyvinyl chloride. (5)

Or

(b) Write in detail about the electrically conducting polymers. (5)

SECTION B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) Describe the kinetics and statistics of linear stepwise polymerization.

Or

(b) Describe in detail about the polymerization in homogeneous and heterogeneous systems.

7. (a) Describe the following in detail :

(i) block copolymers (5)

(ii) graft copolymers. (5)

Or

(b) Explain the following :

(i) reactivity ratio (5)

(ii) kinetics bimetallic mechanism of co-ordination polymers. (5)

8. (a) Explain the structure and property relationship of polymers.

Or

(b) Describe the following in detail :

(i) molecular weight measurement by ultracentrifugation methods. (5)

(ii) molecular weight measurement by viscosity method. (5)