

APRIL/MAY 2018

**MCH14A — ADVANCED POLYMER
CHEMISTRY**

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) What are polymers? How are they classified?
Explain with examples.

Or

- (b) Explain branched and crosslinked polymers
with examples.

2. (a) Write a note on copolymerization.

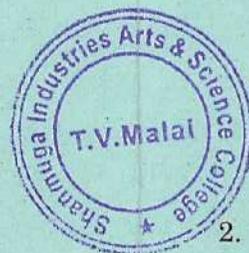
Or

- (b) Explain degree of polymerization.

3. (a) What is thermogravimetry? Discuss the
factors affecting thermogravimetric curves.

Or

- (b) Explain gel permeation chromatography
method.



4. (a) Explain the preparation, properties and applications of polyethylene.

Or

- (b) Describe the role of ion-exchange resin in demineralization of water.

5. (a) Explain interpenetrating network polymers with examples.

Or

- (b) Discuss the preparation and applications of polymer nano composites.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. Explain the following

- (a) Emulsion polymerization (7)
(b) Elastomers (4)
(c) Number-average molecular weight (4)

7. (a) Discuss the kinetics and mechanism of free radical polymerization. (10)

- (b) What are inhibitors? Explain its role in polymerization reaction. (5)

8. (a) Discuss the mechanical and thermal properties of polymers. (8)

- (b) Describe osmotic pressure method for the determination of molecular weight of a polymer. (7)

9. What are natural polymers? Discuss its structures and applications.

10. Write notes on

- (a) Biodegradable polymers
(b) Electroluminescent polymers
(c) Fire-retardant polymers