

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.

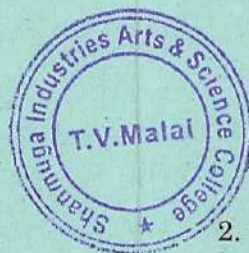
Or

- (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 — ($3 \times 15 = 45$ 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