

(6 pages)

Reg. No. :

Code No. : 41114 E Sub. Code : JMCH 5 A

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2018.

Fifth Semester

Chemistry — Main

Elective —POLYMER CHEMISTRY

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is formed by addition Polymerisation?
(a) Nylon (b) Polyester
(c) Teflon (d) Bakelite
2. An example of natural polymer is
(a) Cotton (b) Nylon
(c) Polythene (d) Teflon

3. Tg value will be lower for _____ molecular weight polymers.
(a) High (b) Low
(c) Very high (d) None
4. Presence of _____ substituents protects the C-C band from thermal degradation.
(a) $-\text{CH}_3$ (b) $-\text{F}$
(c) $-\text{C}_6\text{H}_5$ (d) $-\text{O}-$
5. The die for casting is made of
(a) Plaster of Paris (b) Wood
(c) Metal (d) None
6. In which polymerisation technique dissipation of heat is not easy?
(a) Solution polymerisation
(b) Bulk polymerisation
(c) Emulsion polymerisation
(d) Suspension polymerisation
7. Neoprene is made up of
(a) Isoprene (b) Butadiene
(c) Chloroprene (d) Ethylene

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8. Polyvinyl benzene is
(a) Polystyrene (b) Polyvinyl chloride
(c) Polyester (d) Polythene
9. Which of the following is used for making artificial teeth?
(a) Polyurethane (b) PMMA
(c) PFC (d) PVC
10. Polysaccharides are polymers of
(a) Sugar (b) Salt
(c) Acid (d) Base

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Differentiate between thermoplastics and thermosetting plastics.
Or
(b) Explain isotactic, atactic and syndiotactic polymers with examples.

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12. (a) Explain weight average molecular weight of polymers.

Or

- (b) What is meant by Vulcanization? Explain it.

13. (a) Explain compression moulding of polymers.

Or

- (b) What is Emulsion polymerisation? Explain the advantages and disadvantages of it.

14. (a) Give the preparation, properties and uses of PVC.

Or

- (b) How are the following prepared?

- (i) Polystyrene
(ii) Polyethylene terephthalate.

15. (a) Discuss the biomedical applications of polymers.

Or

- (b) Write a note on conduction polymers.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain

- (i) Condensation polymerization
- (ii) Ring opening polymerization

Or

(b) Discuss the general characteristics of polymers.

17. (a) What is glass transition temperature? Discuss the various factors affecting it?

Or

(b) Explain

- (i) Thermal degradation
- (ii) Oxidative degradation.

18. (a) Compare bulk and solution polymerisation.

Or

(b) Explain spinning and casting techniques.

19. (a) Give the preparation, properties and uses of HDPE LDPE and LLDPE

Or

(b) Discuss the preparation, properties and uses of polyamides and epoxy resins.

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20. (a) Write notes on :

- (i) Contact lenses
- (ii) Dental polymers

Or

(b) Explain Silicone polymers.

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