

(6 pages)

Reg. No. :

Code No. : 40298 E Sub. Code : JMCH 5 A/
SECH 5 A

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2019.

Fifth Semester

Chemistry – Main

Major Elective I — 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. Natural polymer is

- (a) Polyethylene (b) Teflon
(c) Cellulose (d) PVC

2. Copolymers contains atleast _____ types of monomers

- (a) One (b) Two
(c) Five (d) Three

3. Cross linking in the polymers will _____ T_g value

- (a) increase
(b) decrease
(c) not affected
(d) none of the above

4. Relation between degree of polymerization and number average molecular weight is

- (a) $DP_n = \frac{M_n}{M_0}$ (b) $DP_n = \frac{M_w}{M_n}$
(c) $DP_n = \frac{M_n}{T_g}$ (d) None of the above

5. Emulsion polymerization is a type of _____ polymerization

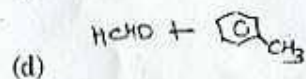
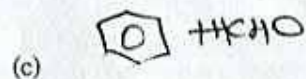
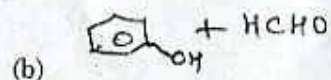
- (a) Cationic (b) Anionic
(c) Radical (d) None of the above

6. Polymers are reinforced with _____

- (a) Paint (b) Fibre
(c) Wire (d) Metal



7. Bakelite is prepared from _____ and _____



8. Natural rubber is _____

- (a) Poly styrene
- (b) Poly isopropanal
- (c) Polyisoprene
- (d) Polyvinylchloride

9. Fire resistant polymer is _____

- (a) Polyethylene
- (b) Polyimide
- (c) PVC
- (d) PVA

10. _____ polypyrrole is conducting polymer

- (a) reduced
- (b) oxydized
- (c) wet
- (d) dry

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PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write classification of polymer on the basis of physical properties and applications.

Or

- (b) Explain thermoplastic and thermosetting polymer with examples.

12. (a) What are the importance of T_g ?

Or

- (b) Write note on polymer degradation.

13. (a) Explain Bulk and solution polymerization with an example.

Or

- (b) Write note on die-casting.

14. (a) Write preparation and uses of poly ethylene.

Or

- (b) Write note on natural and synthetic rubber.

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[P.T.O.]



15. (a) Write note on conducting polymer.

Or

- (b) Write note on silicones.

PART C — (5 × 8 = 40 marks)

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

Answer should not exceed 600 words.

16. (a) Explain the classification of polymer based on structure of the polymer.

Or

- (b) Explain and write mechanism of chain and free radical polymerization.

17. (a) What are the factors affecting the T_g value? Explain.

Or

- (b) How affect the molecular weight of the polymer on degree of polymerization?

18. (a) Explain the condensation and suspension polymerization.

Or

- (b) Explain and sketch the injection moulding and blow moulding method.

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19. (a) Write the preparation and properties of phenol-formaldehyde resin and epoxy resin.

Or

- (b) Write the uses and preparation of :

(i) Nylon

(ii) Polyester

(iii) Polycarbonate.

20. (a) Explain the polymeric materials in biomedical application.

Or

- (b) Explain the polymers in the field of high temperature and fire resistant materials.

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