

Code No. : 20022 E Sub. Code : SECH 5 A/
AECH 51

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

Fifth Semester

Chemistry

Major Elective — POLYMER CHEMISTRY

(For those who joined in July 2017–2020)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is an example of natural polymer?
- (a) Silk (b) Wool
(c) DNA (d) All the above

6. Which process involves to manufacture the glass bottles or other hollow shapes
- (a) Blow moulding
(b) Injection moulding
(c) Extrusion moulding
(d) Reinforcing
7. Phenolic resins is a class of
- (a) thermoplastics (b) epoxy resin
(c) thermo setting (d) elastomers
8. The polymer which drips from the bark of certain tropical trees is known as
- (a) semi synthetic rubber
(b) natural rubber
(c) synthetic rubber
(d) none of the above
9. Polyimides is a
- (a) dental polymer
(b) mechanical resistant
(c) fire resistant polymer
(d) biomedical polymer

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2. Silicones, vulcanized rubber are the examples of
- (a) Thermosetting (b) Thermo plastic
(c) Resins (d) Adhesives
3. Insertion of bulky, inflexible side group _____ T_g.
- (a) increases (b) decreases
(c) no change (d) all the above
4. Polystyrene is formed by
- (a) addition polymerization
(b) condensation polymerisation
(c) (a) and (b)
(d) none of the above
5. Which one of the polymerization technique without a solvent
- (a) Solution polymerization
(b) Bulk polymerization
(c) Emulsion polymerization
(d) Suspension polymerization

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10. Polyurethane (PU) elastomers have been the most commonly used for
- (a) Bone applications
(b) Neurological applications
(c) Cardiovascular applications
(d) Brain applications

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Explain classification of polymers.
Or
(b) Write a note on copolymers.
12. (a) Discuss on number average molecular weight.
Or
(b) Write a note on viscosity average molecular weight.
13. (a) How the compression moulding process is useful in polymer industry?
Or
(b) Explain suspension polymerization.

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[P.T.O.]



14. (a) Account on the preparation and the properties of polystyrene.

Or

(b) Write briefly on the preparation and the properties of polycarbonate.

15. (a) What are the biomedical polymers are useful in contact lenses and blood cells?

Or

(b) Write a note on the polymer industry in India.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the following : properties and applications of rubbers and plastics.

Or

(b) Discuss on the following : (i) chain polymerization (ii) free radical polymerization.

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17. (a) Elaborate the relationships between Tg and molecular weight. And melting point. (4+4)

Or

(b) Explain :

(i) Sedimentation average molecular weight. (4)

(ii) Vulcanisation reactions. (4)

18. (a) Explain :

(i) Injection moulding. (4)

(ii) Blow moulding. (4)

Or

(b) (i) Account on solution polymerization. (5)

(ii) Write a short note on bulk polymerization. (3)

19. (a) List out the applications of the following :

(i) Polyester

(ii) Nylon

(iii) PVC

(iv) Polypropylene.

Or

(b) Write a detailed note on the following :

(i) Melamine formaldehyde. (5)

(ii) Polyacrylonitrile.

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20. (a) Write a note on :

(i) Conducting polymers. (4)

(ii) Silicones.

Or

(b) Write atleast two examples for the following

(i) Dental polymers

(ii) Artificial heart

(iii) Skin cells

(iv) Blood cells.

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