(6 pages) **Reg. No. :** .....

**Code No. : 20076 E** **Sub. Code : CECH 51**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Chemistry

Major Elective — POLYMER CHEMISTRY

(For those who joined in July 2021 and 2022 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. For an unsymmetrical polymer _____.

(a) $Tg = \frac{1}{2} T_m$ (b) $Tg = \frac{2}{3} T_m$

(c) Both (d) None

2. The monomer on the backbone and branches is called _____.

(a) Alternate (b) Graft

(c) Random (d) Block

3. Which one of the following is the example of condensation polymerization?

(a) Terylene (b) Bakelite

(c) Polythene (d) Nylon–6,6

4. The metal involved in Zeigler-Natta catalyst is _____.

(a) $T_i$ (b) $Al$

(c) $T_i$ and Al (d) None

5. An example for plastic is _____.

(a) polystyrene (b) silicone rubber

(c) natural rubber (d) terylene

6. Natural rubber is a/an _____.

(a) Cis-polyisoprene

(b) trans-polyisoprene

(c) example for geometrical isomerism

(d) (a) and (c) only

7. _____ moulding is used to form plastic or metal materials into a predefined shape.

(a) Injection

(b) Extrusion

(c) Blow

(d) Compression

8. _____ is an example of fillers used in polymer processing.

(a) Kaolin (b) Coal

(c) Zn (d) Wood

9. _____ has important applications in fluid mechanics.

(a) Polyaniline (b) Solitan

(c) Nano wire (d) Polyacetylene

10. Hard contact lenses are made of some variant of _____.

(a) PMMA (b) Teflon

(c) PET (d) PVC



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 thermo and thermo setting plastics.

Or

(b) Discuss about synthetic polymers.

12. (a) Explain about free radical polymerization.

Or

(b) Write a note on solution polymerization.

13. (a) Write the preparation and applications of PET.

Or

(b) Discuss about the inorganic polymer poly boron nitride.

14. (a) Define the following :

(i) Plasticizers

(ii) Colourants.

Or

(b) Explain about the term photodegradation.

15. (a) Write short notes on mixed waste recycling.

Or

(b) Explain in detail about the dental polymers.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) What are the types of co-polymers? Explain in detail.

Or

(b) Explain about the glass transition temperature ($T_g$).

17. (a) Compare the following :

(i) Suspension polymerization

(ii) Emulsion polymerization.

Or

(b) Explain in detail about the addition polymerization.



18. (a) Explain the following :

(i) Taflon

(ii) Bakelite

(iii) PVC

Or

(b) Discuss the preparation and applications of

(i) Butyl rubber

(ii) Nitrile rubber

19. (a) Write short notes on :

(i) Additives

(ii) Fillers

Or

(b) Describe about thermal degradation.

20. (a) Discuss in detail about the types of recycling.

Or

(b) Give an account for the mechanism of electrical conduction.

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