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

Code No. : 30298 E **Sub. Code : JMCH 5A/ SECH 5 A**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2020.

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 — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer :

1. Which is a synthetic polymer?

(a) Cellulose (b) Starch

(c) Proteins (d) Nylon

2. Fibres are

   (a) Linear polymers

   (b) Branched polymers

   (c) Cross linked polymers

   (d) None of these

3. The relation between Tg and Tm in symmetrical polymers

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

   (c) $Tg = \frac{2}{3} Tm$ (d) $Tg = \frac{5}{2} Tm$

4. Rubber on oxidation gives

   (a) Lavilinaldehyde

   (b) Acetic acid

   (c) Formic acid

   (d) All these

5. Which is also called pearl polymerisation?

   (a) Bulk polymerisation

   (b) Suspension polymerisation

   (c) Solution polymerisation

   (d) Emulsion polymerisation

6. Which moulding method is used for coating wires with PVC?

(a) Extrusion moulding

(b) Compression moulding

(c) Injection moulding

(d) None of these

7. Caprolactum on polymerisation gives

(a) Nylon 6 (b) Nylon 6, 6

(c) Nylon 11 (d) Nylon 12

8. Which is the monomer of neoprene rubber?

(a) Isoprene (b) Chloroprene

(c) 1,3-butadiene (d) None of these

9. Which type of contact lens is mostly used in medical field?

(a) Hard lens

(b) Regid gas permeable lens

(c) Soft lens

(d) None of these

10. The expansion of HEMA is

(a) Hexa ethyl methyl acrylate

(b) Hydroxy ethyl methyl acrylate

(c) Hexa ethylene methyl acrylate

(d) None of these

PART B — ($5 \times 5 = 25$ marks)

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

Each answer should not exceed 250 words.

11. (a) Give the differences between addition polymerisation and condensation polymerisation.

Or

(b) Explain coordination polymerisation with example.

12. (a) Explain any two chemical reactions of polymers with example.

Or

(b) Explain number average molecular weight.

13. (a) Write short notes on Calendering.

Or

(b) Write short notes on casting.

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

Or

(b) Write short notes on polyesters.

15. (a) Explain artificial kidney.

Or

(b) Explain artificial skin.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Describe the classification of polymers.

Or

(b) (i) Give the differences between thermoplastics and thermosetting plastics.

(ii) Explain cationic polymerisation with example.

17. (a) Explain the following :

(i) Vulcanisation of rubber

(ii) Tg

Or

(b) Explain the methods of degradation of polymers.

18. (a) Describe any two methods of polymerisation.

Or

(b) Describe any two methods of moulding.

19. (a) Explain the following :

(i) PVC

(ii) Phenol–Formaldehyde resin

Or

(b) Write notes on the following.

(i) HDPE

(ii) UF resin

20. (a) (i) Explain the types and uses of contact lens.

(ii) Explain dental polymers

Or

(b) (i) Describe artificial blood cells.

(ii) Write notes on silicone rubbers.

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