Register Number.....

B.TECH. DEGREE EXAMINATIONS: OCTOBER / NOVEMBER-2008

Second Semester

TEXTILE TECHNOLOGY

U07TT202: Polymer Science

Time: Three hours **Max Marks: 100**

Answer ALL Questions:-

Part A (20 x 2 = 40 Marks)

1. Choose the correct polymer of textiles among the following.

   [A] Starch [B] Cellulose [C] Glucose [D] Sericin

2. Select the correct statement among the following

   [A] Polymers promote solubility of textiles
   [B] Polymers contain short chain molecules
   [C] Polymers decide the strength of textiles
   [D] Decrease of molecular weight of polymer gives better textile performance

3. Pick up the monomer for the polymer production

   [A] C_2H_5-OH [B] HO-CH_2-CH_2-OH [C] CH_3-COOH [D] $C_6H_5NO_2$

4. Choose the textile produced by condensation polymerization

   [A] Polyvinylchloride [B] Polyethyleneterephthalate
   [C] Polyethylene [D] Polyacrylonitrile

5. What is the functional group in polyester?

   [A] R-O-R' [B] R-COO-R' [C] NH_2-CHR-COOH [D] HO-R-R'-COOH

6. Name the textile produced from caprolactum as monomer.

   [A] Nylon6 [B] Polyester [C] Nylon66 [D] Polyacrylonitrile

7. What is the co-polymer among the following?

   [A] Polyvinylcyanide [B] Acrylic [C] Polyester [D] Modacrylic

8. Choose the polymer contains more elastic behaviour

   [A] Cellulose [B] Fibroin [C] Polyurethane [D] Polyvinylchloride

9. What is the chemical causes environmental pollution from viscose production?

   [A] Sodium carbonate [B] Acetic acid [C] Carbondisulphide [D] Calcium carbonate

10. Name the regenerated fibre contains poor wet strength.

    [A] Polynosic [B] Viscose [C] Cuprammonium [D] Acetate

11. Indicate the primary chemical used in the acetate rayon production.

    [A] Sodium hydroxide [B] Hydrochloric acid [C] Acetic acid [D] Nitric acid

12. Pick up the regenerated protein fibre.

    [A] Cellulose acetate [B] casein [C] Viscose rayon [D] Lyocell

13. Degree of polymerization determines the repeat of

[A] The number of functional groups [B] The number of polymers
[C] The number of monomers [D] The number of acidic groups

14. Select the technique for thermal characterization of polymers

[A] SEM [B] FTIR [C] TGA [D] XRD

15. Calculate the molecular weight of a polymer, 'P', if the molecular weight of monomer, 'M', is 100 and the number of its repeat, 'N' is 10.

[A] 100 [B] 500 [C] 1000 [D] 750

16. Weight average of polymer is determined by

[A] Number average by end group analysis [B] Interpretation of DSC
[C] Using projection microscope [D] Gravimetric analysis

17. The additive gives attraction on polymer is

[A] Anti oxidant [B] Plasticizer [C] Colouring agent [D] UV stabilizer

18. Choose the important method of polymer processing

[A] Folding [B] Extrusion [C] Padding [D] Boiling

19. Indicate the suitable solvent for nylon

[A] Mild acetic acid [B] 98% formic acid
[C] mild sodium hydroxide solution [D] petroleum ether

20. Name the synthetic polymer involved for the normal textile garments.

[A] Polyethylene [B] Polypropylene [C] Polyacrylonitrile [D] Polyvinylcyanide

Part B (5 x 12 = 60 Marks)

21. a) Explain, with examples, about the mechanism of ionic and free radical polymerization.

[OR]

b) Elaborate the interfacial and melt type of polycondensation technique.

22. a) What are the monomers for PET and PBT? With step wise reaction, explain the production of PET and PBT.

[OR]

b) How acrylic and modacrylic polymers are produced? Write their properties and applications.

23. a) Explain the step wise process for the production of Lyocell.

[OR]

b) Give a detailed account on the production of Casein.

24. a) Describe the determination of weight average of polymer by Gel Permeation Chromatography.

[OR]

b) Write the principle in DTGA and describe the interpretation of its results.

25. a) Explain, with examples, on the role of Plasticizers, Anti oxidants and Fillers during compounding of plastics.

[OR]

b) Elaborate the process for the recovery of polyester polymer from its product.

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