Seat No. _____   Enrolment No.: _____

Gujarat Technological University

Diploma Engineering C to D Bridge Course Examination

Subject Code: C322301   **Date: 03-06 -2016**

Subject Name: Polymer Chemistry

Time: 10:30 AM TO 12:00 PM   **Total Marks: 70**

Instructions:

1. Attempt all questions.
2. Make suitable assumption wherever necessary.
3. Each question is of 1 mark.
4. Use of SIMPLE CALCULATOR is permissible. (Scientific/Higher Version not allowed)
5. English version is authentic.

No.   Question Text and Option.

1.   Polyacetal is also known as _____.
   A.   Polyethylene   B.   Polyoxymethylene
   C.   Polyvinylchloride   D.   Polycarbonate

2.   Monomers are converted into polymer by
   A.   Hydrolysis of monomers   B.   Protonation of monomers
   C.   Condensation reaction
         between monomers   D.   None of these

3.   Commercial production of polypropylene is employed by _____ polymerization.
   A.   Emulsion   B.   Suspension
   C.   Solution   D.   Bulk

4.   Nylon is a _____ material.
   A.   Hygroscopic   B.   Thermo set
   C.   Hydrophobic   D.   Amorphous

5.   The reaction with carboxylic acid is called _____.
   A.   Aminolysis   B.   Acidolysis
   C.   Hydrolysis   D.   Addition reaction

6.   The reaction with amine is called _____.
   A.   Hydrogenation   B.   Substitution reaction
   C.   Aminolysis   D.   Hydrolysis

7.   In hydrogenation reaction _____ catalyst is used.
   A.   Zn   B.   Mg
   C.   Co   D.   Ni

8.   At melting temperature, a polymer starts to _____.
   A.   Solidify   B.   Liquefied
   C.   Melt   D.   Transform into rubber

9.   Crockery is made by _____.
   A.   Silicone   B.   MF
   C.   PMMA   D.   Epoxy

10.   Contact lenses are made by _____.
   A.   PVC   B.   PC
   C.   PP   D.   PMMA

11.   Teflon is the trade name of _____.
   A.   PTFE   B.   PVDF
   C.   PF   D.   PVC

12.   Hexamethylenediamine is used in manufacturing process of _____.
   A.   PP   B.   PC
   C.   PMMA   D.   Nylon6,6

13.   Chloroethane is formed as by product during polymerization of...
   A.   ABS   B.   PVC

C. Polyethylene   D.   Nylon

14. Condensation polymerisation is not involved in the manufacturing of
     A. PET   B.   Polyethylene
     C. Terylene   D.   Nylon

15. Low density polythene as compare to high density polythene is
     A. Harder   B.   Highly dense
     C. Chemically inert   D.   More flexible

16. Soft and rubbery state of polymer is known as _____ state.
     A. Hard   B.   Flexible
     C. Gas   D.   Solid

17. In bulk polymerization, monomer is taken into _____ state.
     A. Solid   B.   Liquid
     C. Gas   D.   Aqueous

18. In emulsion polymerization, the monomer is dispersed in the _____ phase.
     A. Solid   B.   Gas
     C. Liquid   D.   Aqueous

19. Polymer molecules have molecular weight in the range of _____.
     A. 20000 to 40000   B.   0 to 10000
     C. 500 to 1000   D.   100 to 2000

20. M_w/M_n ratio is indication of the extent of _____.
     A. Polydispersity   B.   Weight average molecular weight
     C. Degree of polymerization   D.   Number average molecular weight

21. _____ is more sensitive to photo degradation.
     A. PC   B.   PP
     C. PMMA   D.   PE

22. For all synthetic polymers, M_w/M_n ratio is higher than ____.
     A. 0   B.   4
     C. 1   D.   2

23. T_g is used as a measurement of the property like....
     A. Brittleness   B.   hardness
     C. Solidity   D.   flexibility

24. _____ gives an idea of the lowest and the highest molecular weight species.
     A. Degree of polymerization   B.   Number average molecular weight
     C. Weight average molecular weight   D.   Polydispersity

25. Maxwell model is explanation of _____ behaviour of plastic.
     A. Visco-elastic   B.   Liquid
     C. Rubbery   D.   Glassy

26. Depolymerisation is resemblance to _____ of a zip.
     A. Middle   B.   Opening
     C. Closing   D.   First

27. Polymer degradation is affected by....
     A. Heat   B.   Chemicals
     C. Light   D.   All of above

28. Teflon can withstand up to ____ ^0C temperature.
     A. 400   B.   500
     C. 800   D.   600

29. _____is a type of degradation.
     A. Initiation   B.   Chain end
     C. Propagation   D.   Chain transfer

30. Acidolysis reaction of polymer molecules involves.....
     A. Acid + Base   B.   Base + Alcohol
     C. Acid + Alcohol   D.   Base + Hydrogen

31. Auto acceleration is occurring in _____ polymerization.

	A.	Solution	B.	Bulk
	C.	Suspension	D.	Emulsion

32. _____ is used in manufacturing process of Nylon 6.
    A. Co_2 B. Caprolactam
    C. HCl   D. Carboxylic acid
33. Glass transition temperature is related to _____ materials.
    A. Amorphous   B. Semi crystalline
    C. Linear   D. All of above
34. Back bone chain of polymer is flexible then its T_g_____.
    A. Lower   B. Higher
    C. Doesn't change   D. All of above
35. Amorphous materials are_____.
    A. Opaque   B. Transparent
    C. Both A & B   D. None of above
36. Melt spinning process is used for manufacturing of _____.
    A. Nylon 6.6   B. PS
    C. PE   D. PMMA
37. Polymer morphology is related to _____.
    A. Flow behaviour   B. Colour
    C. Micro structure   D. All of these
38. Epoxy is a ____material.
    A. Thermo set   B. Fiber
    C. Thermo plastic   D. Elastomeric
39. Urea Formaldehyde is prepared by using _____
    A. Urethane + Formaldehyde   B. Urea + Melamine
    C. Urethane + Aldehyde   D. Urea + Formaldehyde
40. Which one is the thermo set material?
    A. PVC   B. Polyester
    C. ABS   D. PP
41. Suspension product can be directly used for _____.
    A. Paints   B. Water
    C. Adhesives   D. Both a and c
42. The hard, brittle state for polymer is known as _____ state.
    A. Viscous liquid   B. Glassy
    C. Melt   D. Visco-elastic
43. Minimum contamination in product is the advantage of....
    A. Solution Polymerization   B. Bulk Polymerization
    C. Suspension Polymerization D. Emulsion Polymerization
44. Bulk polymerisation is also called........polymerization.
    A. Mass   B. Solid state
    C. Flow   D. Gas phase
45. Homogeneous phase is possible in....polymerization technique.
    A. Gas phase   B. Bulk
    C. Suspension   D. Emulsion
46. Crystalline materials have ____ density as compare to amorphous.
    A. Lower   B. Higher
    C. Equal   D. None of above
47. _____ is also known as pearl polymerization.
    A. Bulk Polymerization   B. Solution Polymerization
    C. Emulsion Polymerization   D. Suspension Polymerization
48. For unsymmetrical polymers, value of T_g/T_m is...
    A. 2/3   B. 1/2
    C. 6/3   D. 4/8
49. Amorphous material is also called_____.
    A. Liquid   B. Super cooled liquid
    C. Crystalline solid D. Gaseous
50. In _____ polymerisation technique, the product is obtained as spherical beads.

A. Bulk   B. Emulsion
C. Suspension   D. Solution

51. High molecular weight polymers can be made at fast polymerization rate in....
    A. Bulk Polymerization   B. Solution Polymerization
    C. Emulsion Polymerization   D. Suspension Polymerization

52. Generally condensation, ionic or Ziegler-Natta polymerization is not carried out by......
    A. Solution Polymerization   B. Bulk Polymerization
    C. Suspension Polymerization   D. Emulsion Polymerization

53. Which is an addition polymer product?
    A. Nylon   B. Bakelite
    C. Polyethylene   D. None of these

54. IBM stands for _____.
    A. Intra Brownian Movement   B. Internal Brow Movement
       Internal Brownian   International Brownian
    C. Movement   D. Movement

55. HDPE is the product of polymerization of_____.
    A. Adipic acid   B. Carbon
    C. Nitrogen   D. Ethylene

56. Which material has better crystallinity?
    A. PP   B. PMMA
    C. PVC   D. PS

57. The function of stabilizer is to prevent_____.
    A. Initiation   B. Degradation
    C. Termination   D. Propagation

58. Mechanical degradation leads to _____ degradation.
    A. Auto   B. Random
    C. Chain end   D. Photo

59. For symmetrical polymers, value of T_g/T_m is...
    A. 2/3   B. ½
    C. 6/3   D. 4/8

60. Novolaks are prepared under
    A. Acidic condition   B. Basic condition
    C. Neutral condition   D. Any condition from above

61. Thermal degradation is occurs due to.....
    A. Photo energy   B. Mechanical stress
    C. Heat   D. All of above

62. Block co polymers are made by
    A. Ionic polymerisation   B. Both A & C
    C. Free radical polymerisation   D. None of above

63. Polymer melt exhibits the tendency of return to its previous shape due to....
    A. Visco-elasticity   B. Crystalline
    C. Flexibility   D. Flow ability

64. Degree of long ordered structure is called _____.
    A. Crystallinity   B. Dissolution
    C. Amorphous   D. Latex

65. Polyvinyl acetate on hydrolysis gives
    A. Polyvinyl chloride   B. Polyvinyl acetals
    C. Polyacrylic acid   D. Polyvinyl alcohol

66. Cross linking of natural rubber is carried out with the help of.....
    A. Sodium   B. Chlorine
    C. Sulfur   D. Carbon

67. Cross linked polymer is produced due to _____
    A. Mono functionality   B. Bi functionality
    C. Tri functionality   D. Non functionality

68. Polymer crystallinity is measured by _____
    A. DSC   B. X-ray diffraction

  C. Both A & B   D.   None of all
69. Chain end degradation is just reverse process of _____.
  A. Initiation   B. Propagation
  C. Inhibition   D. Polymerization
70. Molecular weight is drastically reduced in....
  A. Chain end degradation   B. Anionic degradation
  C. Ionic degradation   D. Random degradation

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