Q.24 Explain vapour phase osmometry technique.
Q.25 Explain different types of initiators.
Q.26 Explain any one technique for determination of Tg.
Q.27 Write short note on Ziegler Natta polymerisation catalyst.
Q.28 Discuss the concept of functionality in brief.
Q.29 Write Carother's equation and its importance.
Q.30 Write short note on crystalline behavior of polymers.
Q.31 Explain random and block copolymers.
Q.32 Define reactivity ratio? Explain its effect on structure of polymers.
Q.33 What do you understand by Molecular weight distribution.
Q.34 Discuss polymer dissolution.
Q.35 Explain thermodynamics of polymer solution.

SECTION-D

Note : Long Answer type question. Attempt any two questions. (2x10=20)

Q.36 Explain:
a) Bulk polymerisation technique.
b) Advantages and disadvantages of Emulsion polymerisation technique.

Q.37 Discuss :
a) Lonic polymerisation
b) Maxwell voigt voigt model of visco-elastic Material.

Q.38 Explain :
a) Importance of copolymers
B) Give difference between amorphous and crystalline polymers.

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4th Sem / Plastic Engineering
Subject : Plastic Science & Technology-II

Time : 3 Hrs. **M.M. : 100**

SECTION-A

Note : Multiple choice questions. All questions are compulsory. (10x1=10)

Q.1 One such method is vapour phase ____ that indirectly measures vapor pressures of polymer solutions:
a) Symmetry b) Osmometry
c) Isentropic d) Adiabatic

Q.2 ____ consist of individual polymers with varying molecular weights. The properties of the polymers depend on the distribution of molecular weights.
a) Mono-Disperse b) Polydispersity
c) Cellulose chain d) Synthetic polymer

Q.3 Glass transition temperature of polymer is determined by _____
a) Infrared spectroscopy
b) Differential scanning calorimeter
c) Mass spectrometry
d) Scanning electron microscopy

Q.4 A _____ depicted as M_n, Let Ni equal the number of the molecules or moles or other calculatedof number of molecules with mass M, or a calculated of mass such as D.P.
a) Number average molecular weight
b) Number mean molecular weight

c) Number median molecular weight
d) Number mode molecular weight

Q.5 Which is an example of organic polymer?
a) Cellulose b) Nylon
c) Starch d) None of these

Q.6 Emulsion polymerization is a type of polymerization that occurs in emulsion droplets called _____
a) Emulsified droplets
b) Micelle
c) Emulsifying droplets
d) Emulsifier droplets

Q.7 The _____ is always higher than the number average molecular weight, except for the special case when they are equal if all of the polymers have the exact same molecular weight.
a) Weight average molecular weight
b) Weight average cation weight
c) Weight average anion weight
d) None of these

Q.8 Which of the following is an initiator molecule in the free radical polymerisation?
a) Benzoyl peroxide
b) Sulphuric acid
c) Potassium permanganate
d) Chromium oxide

Q.9 Isomerism that arises out of the difference in spatial arrangement of atoms or groups about the doubly bonded carbon atoms are called?
a) Structural Isomerism
b) Stereo Isomerism
c) Geometrical Isomerism
d) Optical Isomerism

Q.10 Polymer formation from monomer starts by
a) The condensation reaction between monomers
b) The coordinate reaction between monomers
c) Conversion of monomer to monomer lons by protons
d) Hydrolysis of monomers

SECTION-B

Note : Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Macromolecules doesn't show _____ point.

Q.12 Give representation of Weight average molecular weight of polymers.

Q.13 ____ is an example of amorphous polymer.

Q.14 Name two factors that effect Glass transition of polymers.

Q.15 _____ is an example of copolymer.

Q.16 Give relation between Tg and Tm

Q.17 DP stands for _____.

Q.18 GPC stands for _____.

Q.19 Cryoscopy is the technique for measuring.

Q.20 _____ is an example of secondary bonding in polymers.

SECTION-C

Note : Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Discuss phenomenon of auto acceleration.

Q.22 Give difference between low molecular weight compounds and macromolecules.

Q.23 Explain advantage of solution polymerisation. technique of polymerisation.