

8.	The glass transition temperature of a polymer is influenced by a) concentration of the solution b) structure of polymer c) molecular formula d) molecular weight	1	1
9.	DSC characterization of polymers can be used to identify a) thermal transition b) crystallinity c) quality control d) all of these	1	1
10.	The technique which is used to measure the viscoelastic properties of a polymer is a) TGA b) DMA c) DSC d) DTA	1	1
Q. No.	SECTION B Answer ALL the questions. (10 x 1 = 10 marks)	CO	KL
	Fill in the blanks.		
11.	Neoprene is produced by polymerisation of-----.	2	2
12.	The initiator used in free-radical polymerization is-----.	2	2
13.	The Mark-Houwink equation is written as-----.	2	2
14.	The equation used to find the resultant free energy change in thermodynamics of polymer solution is-----.	2	2
15.	Impact testing of polymer measures -----.	2	2
	Answer in a line or two.		
16.	How is PMMA prepared?	2	2
17.	What are living polymers?	2	2
18.	State the basic principle of vapour phase osmometry.	2	2
19.	What is meant by "Gutta Percha"?	2	2
20.	State the use of melt rheology of polymer.	2	2
Q. No.	SECTION C Answer any FOUR questions. (4 x 6 = 24 marks)	CO	KL
21.	Illustrate the determination of the degree of polymerisation for an 'addition' and 'condensation' polymerisations choosing suitable monomers for each.	3	3
22.	Prove that the rate of polymer formation of free-radical polymerisation is proportional to the first power of the monomer concentration and also to the square -root of the initiator concentration.	3	3
23.	Explain the number-average and weight-average methods of calculating the weight of polymers.	3	3

24.	Compare glass transition temperature and melting point. List the importance of glass transition temperature.	3	3
25.	Write a note on mechanical properties and testing of polymers.	3	3
Q. No.	SECTION D Answer any FOUR questions. (4 x 8 = 32 marks)	CO	KL
26.	a) List the structural requirements of any two conducting polymers with their conductivity values. (4) b) Differentiate natural and synthetic polymers. (4)	4	4
27.	How would you prepare the stereo-regular polymers using Ziegler-Natta catalysts by coordination polymerization? Explain with mechanism.	4	4
28.	Illustrate with a chemical method of calculation the number-average molecular weight of polymer samples whose molecules contain reactive functional groups at one end.	4	4
29.	a) Differentiate crystalline and amorphous polymers. (4) b) Write short notes on liquid crystal polymers. (4)	4	4
30.	Discuss the significance of any two characterization techniques that are used for polymers.	4	4
Q. No.	SECTION E Answer the following questions. (2 x 12 = 24 marks)	CO	KL
31.	Discuss the mechanism of the various types of polymer degradation and its consequences. (OR)		
32.	a) Emulsion polymerization is the most widely used industrial technique. Justify with detailed procedure. (8) b) List the functions of fillers and plasticizers with example. (4)	5	5
33.	Describe the principle, experimental set-up and determination of molecular weight of polymers by light scattering method. (OR)		
34.	a) Write a note on (i) stress-strain properties and (ii) visco-elastic behavior of polymers. (6) b) Explain the synthesis of PS and formaldehyde resin. (6)	5	5

