

Uva Wellassa University of Sri Lanka
 Faculty of Science and Technology
 Department of Science and Technology
 300 Level 1st Semester Examination – May/July 2017
 SCT 346-2 Polymer Science & Technology – I
 Part C – Essay Questions

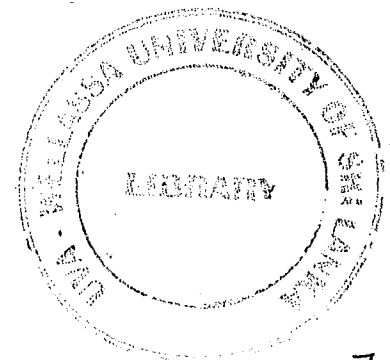


Provide your answers in separate booklet

1.
 - i. Sketch portion of a linear polystyrene molecule that are (15 Marks)
 - a. Syndiotactic
 - b. Atactic
 - c. isotactic
 - ii. Sketch cis and trans structures for polybutadiene (10 Marks)
 - iii. Briefly compare and contrast thermoset and thermoplastic polymers (25 Marks)
 - iv. Briefly compare and contrast injection molding and blow molding (30 Marks)

2.
 - i. What is weight average molecular weight (15 Marks)
 - ii. What number average molecular weight (15 Marks)
 - iii. What is polydispersity index (15 Marks)
 - iv. Polymer samples consist of billions of polymer chains having different molecular weights. Thus, in general, two different molecular weight parameters, M_n and M_w , is used to define its molecular weight. Following is a set of representative data set. The first column indicates the number of chains/molecules and the second column indicates the mass of each molecule. Determine the M_n , M_w and polydispersity index of the sample. (35 Marks)

Number of Molecules	Mass of each Molecule
1	80,000
3	75,000
5	70,000
8	65,000
10	60,000
13	55,000
20	50,000
13	45,000
10	40,000
8	35,000
5	30,000
3	25,000
1	20,000



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 (104)