

Unit 4 - Viscoelasticity and Introduction to polymers

Course outline

How does an NPTEL online course work?

Introduction to viscoelasticity

Viscoelasticity and Introduction to polymers

Viscoelasticity and Introduction to polymers

Atoms and bonds

Interatomic bonds

Polymers

Polymers (Cont.)

Polymers (Cont.)

Quiz : Week 3 Assessment

Constitutive Equations

Viscoelastic models

Viscoelastic models

Viscoelastic models (cont.) & Constitutive modelling

Response to Sinusoidal oscillations

Weekly Feedback forms

Text Transcripts

Week 3 Assessment

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-18, 23:59 IST.

1) What is the chemical group "X" in $[CH_2 = CHX]_n$ to form polyvinyl chloride? 1 point

CH_3

C_6H_5

Cl

$CONH_2$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 Cl

2) Which type of bond is strongly directional in Solids? 1 point

Ionic

Covalent

Mettalic

Vander Waal's

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $Covalent$

3) Identify the correct sequence among number averaged molecular weight M_N , weight averaged molecular weight M_W and viscosity averaged molecular weight M_V . 1 point

$M_W > M_N > M_V$

$M_N > M_V > M_W$

$M_N > M_W > M_V$

$M_W > M_V > M_N$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $M_W > M_V > M_N$

4) Consider a mixture containing two fractions of different sized molecules having molar masses $M_A = 10^5 \text{ g/mol}$ and $M_B = 2 \times 10^5 \text{ g/mol}$. The number of moles of the respective fractions in the sample are $N_A = 0.3$ and $N_B = 0.7$. 1 point

Based on the given information, the number averaged molar mass is _____.

$1.7 \times 10^5 \text{ g/mol}$

$3 \times 10^5 \text{ g/mol}$

$1.2 \times 10^5 \text{ g/mol}$

$0.5 \times 10^5 \text{ g/mol}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $1.7 \times 10^5 \text{ g/mol}$

5) Based on the information given in the previous question, the weight averaged molar mass is _____ 1 point

$1.7 \times 10^5 \text{ g/mol}$

$2.58 \times 10^5 \text{ g/mol}$

$1.823 \times 10^5 \text{ g/mol}$

$0.8 \times 10^5 \text{ g/mol}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $1.823 \times 10^5 \text{ g/mol}$

6) Based on the information given in question 4, the Z- average molar mass is _____ 1 point

$1.7 \times 10^5 \text{ g/mol}$

$2.286 \times 10^5 \text{ g/mol}$

$1.823 \times 10^5 \text{ g/mol}$

$1.903 \times 10^5 \text{ g/mol}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $1.903 \times 10^5 \text{ g/mol}$

7) Based on the information given in question 4, what is the viscosity average molar mass by assuming flexible polymer in good solvent with exponent $n = 0.7$? 1 point

$1.7 \times 10^5 \text{ g/mol}$

$1.809 \times 10^5 \text{ g/mol}$

$1.823 \times 10^5 \text{ g/mol}$

$1.903 \times 10^5 \text{ g/mol}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $1.809 \times 10^5 \text{ g/mol}$

8) Based on information given in question 4, what is the heterogeneity index of the polymer? 1 point

1.072

0.915

1.628

1.52

No, the answer is incorrect.
Score: 0

Accepted Answers:
 1.072

9) A Polymer molecule with degree of polymerization of 10000 and molecular weight of monomer as 28 g/mol. What is the molecular weight of the polymer molecule in grams? 1 point

140000

280000

320000

360000

No, the answer is incorrect.
Score: 0

Accepted Answers:
 280000

10) Identify the bond type in thermosetting polymers. 1 point

Ionic

Covalent

Mettalic

Vander Waal's

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $Covalent$