

Roll No.

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322504

Dec. 2021

B.Sc. (Chem) - Vth SEMESTER

Polymer Chemistry (DECC502)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

- 1. It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
- 2. Answer any three questions from Part-B in detail.*
- 3. Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Define the term glass transition temperature. (1)
(b) Give two important applications of Teflon polymer. (1)
(c) Differentiate between LDPE and HDPE. (1)
(d) Draw the structure of Bakelite polymer. (1)
(e) Define the term vulcanization. (1)
(f) Name any two condensation polymers. (1)

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[P.T.O.]

- (g) Explain the term free radical polymerization. (1)
- (h) What are thermosetting polymers? (1)
- (i) Differentiate between homopolymerization and copolymerization. (1)
- (j) What is polydispersity index? (1)

PART - B

- 2. (a) Explain the mechanism and kinetics of Radical chain growth polymerization. (3)
- (b) What are the factors affecting crystalline melting point in polymers? (2)

- 3. (a) Explain the crystalline melting point and degree of crystallinity in polymers. (2)
- (b) Write preparation, structure and application of silicones and polyacetylene polymers. (3)

- 4. Discuss the method of determination and factors affecting the glass transition temperature. (5)

- 5. (a) Explain the mechanism of Ziegler Natta polymerization. (3)
- (b) What are the basic differences between addition and condensation polymerization? (2)

- 6. The polymer sample has the following composition

Number of molecules	Molecular weight
10	1000
50	2000
40	4000

- (a) Calculate Number Average Molecular weight (M_n) and Weight Average Molecular weight (M_w). (3)
- (b) Find out Polydispersity Index (PDI). (2)
