

2023

6th Semester Examination

CHEMISTRY (Honours)

Paper : DSE 4-T

[Polymer Chemistry]

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any **five** questions : $2 \times 5 = 10$

1. What is critical micelle concentration?
2. What are the induction forces?
3. What do you mean by co-polymer? Give example.
4. Define co-ordination polymerization and give an example.
5. Why do the fluoropolymers exhibit non-stick property?
6. Why is silicon polymer used in aerospace polymers?
7. What do you mean by lyotropic liquid crystals?
8. Define polydispersity index.

P.T.O.

(2)

Group - B

Answer any *four* questions : $5 \times 4 = 20$

9. (a) Write down the differences between linear and branched polymer. 2+3
- (b) What is Flory-Huggins theory? 2+3
10. (a) Which methods are used to characterize the mesophases? 2+3
- (b) Deduce the May-Lewis equation of co-polymerization. 1+4
11. (a) Write down the differences between anionic and free radical polymerization. 2+2+1
- (b) What is pseudo-cationic polymerization? 2+2+1
- (c) What is back-biting? 2+2+1
12. (a) What is ceiling temperature? 3+2
- (b) Explain why methyl methacrylate has lower rate constant compared with methyl acrylate. 3+2
13. (a) What is steady state approximation? How is it expressed? 1+2+2
- (b) Write a short note about LDPE. 1+2+2
14. (a) Define primary and secondary crystallization. 2+1+2
- (b) Define Tacticity. 2+1+2
- (c) What do you mean about Ladder polymer? 2+1+2

(3)

Group - C

Answer any *one* question : $10 \times 1 = 10$

15. (a) Write down the differences between condensation polymer and addition polymer.
- (b) Define Graft co-polymer.
- (c) Write down the relation between T_g and T_m .
- (d) Write a short note on emulsion polymerization.
- (e) What are the differences between nylon6 and nylon66? $2+1+2+3+2$
16. (a) 10 gm of organic substances when dissolved in two litres of water gave an osmotic pressure of 0.59 atm, at 7°C . Calculate the molecular weight of the substance.
- (b) Write down the significance of molar mass distribution.
- (c) What is Buna-S? How is it prepared?
- (d) Define sedimentation and viscosity average molecular weight of polymer. $2+2+(1+2)+3$
-