

(FOR THE CANDIDATES ADMITTED

23UCY6E4

DURING THE ACADEMIC YEAR 2023-2024 ONLY)

REG.NO.:

N.G.M. COLLEGE (AUTONOMOUS): POLLACHI

END-OF-SEMESTER EXAMINATIONS: MAY 2026

B.Sc. CHEMISTRY

MAXIMUM MARKS: 75

SEMESTER VI

TIME : 3 HOURS

PART - III

23UCY6E4 – DSC – II: POLYMER CHEMISTRY

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

1. Degree of polymerization is the ratio of _____

A) Density B) Molecular weight of polymer to monomer C) Volume D) Temperature

2. Anionic polymerization is initiated by _____

A) BF_3 B) AlCl_3 C) n-Butyl lithium D) Oxygen

3. Photo degradation is caused by _____

A) Heat B) Water C) UV light D) Oxygen

4. FTIR identifies polymers based on _____

A) Mass B) Charge C) Functional groups D) Colour

5. Biopolymers are _____

A) Toxic B) Non-biodegradable C) Eco-friendly D) Metallic

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

6. What is an elastomer?

7. Give an example of condensation polymer

8. Define isotactic polymer

9. Indicate the polydispersity index

10. State calendaring

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K3)

11. a) Distinguish between thermoplastics and thermosetting plastics

(OR)

b) Explain primary and secondary bond forces

12. a) Examine free radical polymerization mechanism

(OR)

b) Describe the ionic polymerization

13. a) Classify the types of tacticity

(OR)

b) Define glass transition temperature (T_g). Analyze the factors affecting T_g of polymers

14. a) Contrast number-average, weight-average, and viscosity-average molecular weights
(OR)
b) Describe the Gel Permeation Chromatography (GPC) method

15. a) Show the environmental effects of polymers
(OR)
b) Outline the preparation and uses of polyethylene

SECTION – C

(5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K4 (Or) K5)

16. a) Illustrate the classification of polymers
(OR)
b) Experiment on polymerization techniques
17. a) Compare addition and condensation polymerization with examples
(OR)
b) Determine the copolymerization and its importance
18. a) Investigate the Ziegler–Natta catalysts and their mechanisms
(OR)
b) Summarize the polymer additives and their functions
19. a) Examine the methods for determination of average molecular weight
(OR)
b) Estimate the role of spectroscopy in polymer identification and examine the significance of IR, NMR, and UV–Visible spectroscopy
20. a) Describe the processing techniques of polymers
(OR)
b) Illustrate the preparation and uses of important industrial polymers
