22CHU519A

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(Fifth Semester)

Branch – **CHEMISTRY**

MAJOR ELECTIVE COURSE- I: POLYMER CHEMISTRY

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 Which of the following polymer type is not classified on the basis of its application and properties?
(a) Rubbers (b) Plastics (c) Fibres (d) Synthetic

2 Identify the technique for commercial preparation of Styrene butadiene rubber?
(a) Bulk polymerization (b) Suspension polymerisation
(c) Solution polymerisation (d) Emulsion polymerisation

3 When each chiral centre has the same configuration, the polymer is called---
(a) Atactic (b) Syndiotactic (c) Isotactic (d) Multitactic

4 Which of the following category does cellulose nitrate fall into?
(a) Natural (b) Synthetic (c) Semi-synthetic (d) None of these

5 Which one is the examples for Wood flour and silica flour?
(a) Fillers (b) Plasticizers
(c) Stabilizers (d) Lubricants

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. a How will you classify the polymer based on applications?
OR
b Narrate the mechanism of condensation polymerization.

7. a State the Mark Houwink equation.
OR
b Describe the end group analysis.

8. a Explain the stress train relationship.
OR
b Outline the preparation and properties of polyaniline.

9. a How will you prepare the polyurethane? Show its properties and uses.
OR
b How will you prepare the polyesters? Show its properties and uses.

10 a Describe the Flame retardants with examples.
OR
b Analyze the recycling of polymers.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11. a. Discuss the kinetics of free radical polymerization.

OR

b. Point out the polymerization. Classify the polymerizations.

12 a. Discuss the polymerization techniques.

OR

b. Elucidate the weight average molecular weight.

13 a. Highlight the stereochemistry of polymers.

OR

b. Discuss the electrical properties of polymers.

14 a. Outline the preparation properties and uses of polycarbonates and phenol-formaldehyde.

OR

b. Outline the preparation properties and uses of the following synthetic rubbers.

15 a. Describe the following moulding techniques.
(i) Injection (ii) Blow moulding (iii) Compression

OR

b. Discuss about the biodegradable polymers.

Z-Z-Z END