

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Fifth Semester)

Branch – CHEMISTRY

DISCIPLINE SPECIFIC ELECTIVE – 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)

- Which of the polymer is obtained by chain polymerization?
(i) Bakelite (ii) Polypropylene
(iii) Nylon (iv) Dacron
- Weight average molecular weight is _____ on the weight of molecules in a polymer.
(i) dependent (ii) independent
(iii) partially dependent (iv) None of these
- Choose the correct one:
(i) For symmetrical polymers, $T_g = 2 T_m$
(ii) For symmetrical polymers, $T_g = \frac{1}{2} T_m$
(iii) For unsymmetrical polymers, $T_g = 3 T_m$
(iv) For unsymmetrical polymers, $T_g = \frac{3}{2} T_m$
- Which of the following is known as Lucite?
(i) PVC (ii) PE
(iii) PMMA (iv) PP
- Select the process to produce hollow plastic materials:
(i) Compression moulding (ii) Injection moulding
(iii) Extrusion moulding (iv) Blow moulding

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- (a) Explain the addition and condensation polymerization with one example.
(OR)
(b) Discuss the kinetics of polyester formation.
- (a) Give an account of suspension polymerization.
(OR)
(b) Write a note on: Mark Houwink equation.
- (a) Describe about plastic deformation of polymers.
(OR)
(b) Explain the tacticity of polymers.
- (a) Compare the structure of Starch and Cellulose.
(OR)
(b) Describe the preparation, properties and uses of Neoprene.
- (a) With neat sketch, explain compression moulding.
(OR)
(b) Analyze about the recycling of polymers.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11. (a) Describe the classification of polymers with suitable examples.
(OR)
(b) Enumerate the Ziegler - Natta polymerization of suitable.
12. (a) Describe the bulk and emulsion polymerization.
(OR)
(b) How is number average molecular weight determined by Osmometry method?
13. (a) What is meant by glass transition temperature? Explain the factors affecting glass transition temperature.
(OR)
(b) Discuss the preparation and properties of Polyacetylene.
14. (a) Analyze the preparation, properties and uses of Buna-S and Buna-N rubbers.
(OR)
(b) How will you prepare the following: (i) Polyamides
(ii) Polycarbonates
(iii) Bakelite?
15. (a) Discuss in detail about the functions of different constituents used in the compounding of plastics.
(OR)
(b) Describe the different types of polymer degradation.
