

Serial No. 6656

Name of Course:

B.Sc.(Hons.)

Semester:

II/IV/VI/VIII

Name of the Paper:

GE (Basics of polymer chemistry)

Unique Paper Code:

2174001208

Duration:

2 hours

Maximum marks

60

Instructions for candidate

1. Attempt any four questions out of six.

2. All questions carry equal marks.

Q1. (a) Explain the classification of polymer based on their structure. 5

(b) What is addition polymerisation? How is polyethylene formed? 5

(c) Explain the difference between configuration and conformation of the polymer. 5

Q2. (a) A polymer has the following molar mass.

Number of molecules	Molar mass (g/mol)
50	5000
75	6000

Calculate the number average, weight average and PDI. 5

(b) How can you determine molecular weight of polymer by viscosity method? 5

(c) How does crosslinking change the physical properties of polymer? 5

Q3. (a) Write short note on:

(i) Polydispersity index; (ii) degree of polymerization. 5

(b) With suitable examples, explain the difference between thermoplastics and thermosetting plastics. 5

(c) Explain morphology of polymers. 5

Q4. (a) What is the difference between HDPE and LDPE? Discuss their preparation, properties and application. 5

(b) Write structure and application of polyaniline, and polypyrrole. 5

(c) Define inhibitors with examples. Explain the role of inhibitor in polymer industry. 5

Q5. (a) Explain the structure and applications of the following: 5

(i) Polystyrene

(ii) Phenol formaldehyde resin.

(b) What is glass transition temperature? Discuss the effect of structure and molecular weight of polymer on glass transition temperature. 5

(c) Briefly describe the criteria for formation of synthetic polymer. 5

Q6. (a) Discuss the nomenclature of polymer. 5

(b) Briefly describe the end group analysis method for determining number average molecular weight. 5

(c) Describe the preparation, and application of the following: 5

(i) Polyamides

(ii) Poly(vinyl chloride)