1385

Unique Paper Code : 6092011102

Name of the Paper : Raw Material of Polymers (2024-25) (UGCF)

Name of the Course : B.Sc. (Hons.) Polymer Science

Semester : I

Duration : 3 Hours

Maximum : 90

Marks Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt six questions in all.
3. Draw neat and labelled diagram wherever necessary.
4. All questions carry 15 marks.

Questions:

Q1. a) Elaborate the general consideration about petrochemicals along with the importance of desalting method in detail. 8

b) Explain the importance of cracking, and discuss methods of cracking used in a petroleum refinery. 7

Q2. a) Write short note on chlorination process of organic molecules and its use in production of ethylene dichloride and vinyl chloride synthesis. 6

b) Explain the properties and importance of caprolactam as raw materials in polymer industries. 6

c)Discuss the process for preparation of ethylene monomer along with the suitable diagram. 3

Q3. a) Explain the use of biomass as a source of ethylene glycol. 5

b) Explain the industrial method for the preparation of hexamethylene diamine. 5

c) Discuss the DOW process of phenol preparation.

Q4. Write the note on followings:

a) Stabilizers, b) Thickening agent, c) accelerators, d) Emulsifying agent and e) Wetting agent. (3x5=15)

Q5. a) What is latex? Write the structure of latex and composition of latex. 6

b) Explain the methods used for concentration of Latex along with their advantage & disadvantages. 6

c) Compare latex dipping with solution dipping. 3

Q6. a) Explain the importance of mixing of ZnO in latex. Also write the process of evaluation of dispersion of ZnO. 6

b) Write a short note on: Latex Cement, and Coagulation process of latex. 6

c) Describe the importance of fillers in the processing of latex. 3

Q7. a) What is compounding? Explain the procedure and compounding of latex foam. 9

b) Write the formulation of latex balloon with the role of each ingredient. 6