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B.Sc. (Hons) Chemistry (Semester: 6th)

POLYMER CHEMISTRY

Subject Code: BCHMD1611

Paper ID: [19131639]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) What is the Polydispersity index?
- b) What do you mean by polymerization?
- c) Write a short note on natural polymer?
- d) What are thermoplastic and thermosetting polymers?
- e) Write a short note on polycarbonates?
- f) What is isotacticity?
- g) What is crystallinity?
- h) What is glass transition temperature?
- i) What is Bakelite?
- j) Write something about upper and lower critical temperature?

Section – B

(5 marks each)

- Q2. What is the meaning of functionality? Give polymerization reactions of bifunctional and trifunctional monomers.
- Q3. What type of molecular and chemical forces operates in different polymers? Explain with examples.
- Q4. Differentiate atactic, isotactic, and syndiotactic polymer?
- Q5. What is PDI and how important is this in polymerization? Elaborate with examples.
- Q6. Explain the synthesis of conducting polymers.

Section – C

(10 marks each)

- Q7. Write down the preparation, structure, and applications of polyvinyl acetate, polyamides, and Novalac.
- Q8. Derive the Flory-Huggins equation for the vapor pressure of a polymer solution.
- Q9. Write a detailed note on the classification and nomenclature of polymers.