Roll No……..….. **Total No. of Printed Pages: [01]**
Total No. of Questions: [09]

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.