Serial No. 6657

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 carries equal marks

Q1. (a) Explain the classification of polymer. 5

(b) Explain addition polymerization with an example? 5

(c) What is tacticity? How does it affect the T_m of a polymer? 5

Q2. (a) What is crystallinity of polymer? Differentiate between crystallinity and crystallizability. 5

(b) Describe the end group analysis method for the determination of molecular weight of polymers. 5

(c) Differentiate between thermoplastic and thermosetting polymers with example. 5

Q3. (a) Explain WLF theory to explain the viscosity variation of polymer with temperature. 5

(b) How does the texture of polymer change with temperature and intermolecular forces? Explain. 5

(c) Explain the importance of polydispersity. 5

Q4. (a) Name any two examples of silicon polymers and discuss their properties. 5

(b) Write a short note on the synthesis and applications of polyaniline. 5

(C) Write the synthesis of Nylon 6,6 and explain its applications.

Q5. (a) Write short note on:

(i) Conducting Polymers
(ii) Fluoro polymers 5

(b) What is glass transition temperature (T_g)? Discuss the effect of structure and

molecular weight of polymer on glass transition temperature. 5

(c) Write short note on: 5

(i) Crystalline polymer

(ii) Amorphous polymer

Q6. (a) Define functionality of a monomer and write its significance. 5

(b) A polymer sample is composed according to the following mixture of fraction (Mass % and molecular weight of each of the fraction are given):

Mass %	20	30	50
Mol. Weight	50,000	1,00,000	2,00,000

Calculate M_n, M_w and PDI for this polydispersed polymer. 5

(c) Discuss the preparation, properties and application of polyurethanes. 5