Instructions:
1. Attempt any Six questions out of which Q.1 is Compulsory
2. Answer each next question on new page
3. Figures to the right indicate full marks
4. Illustrate your answers with neat sketches & flow charts wherever necessary
5. Use of non-programmable electronic pocket calculator is permissible
6. Mobile and any other communication devices are not allowed in the Examination hall.
7. Assume suitable data wherever necessary

Q 1
Attempt any five  20

a Explain properties of polymer required to be a textile fibre.
b What is polymerization reaction? Classify the polymerization reactions.
c Explain rheology of polymers.
d What are poly-functional polymers?
e Explain glass transition temperature of a polymer and explain its importance in Textiles.
f Explain vinyl polymerization.

Q 2
What is polymer degradation? Explain various types of polymer degradation.  16

Q 3
Write short notes on the following:  16
a. Initiators in Polymerization reaction.
b. Difunctional polymers.
c. Classification of polymers.
d. Graft polymerization.

Q 4
a Explain mechanical behavior of polymers.  08
b Describe thermal characterization of polymers.  08

Q 5
a Define weight average and number average molecular weight distribution of polymers. Discuss the significance of them.  08
b Discuss polymerization reaction with a suitable example.  08

Q 6
Discuss rheology of polymers. Describe the significance of viscous, plastic and viscoelastic flow with reference to stress and strain properties.  16

Q 7
a Explain tacticity of polymer.  04
b Discuss conducting polymers and their application.  08
c Explain the use of inhibitors and antioxidants in polymer industry.  04

Q 8
a Explain manufacturing process of Nylon 66.  08
b Write a note on aging of polymers.  04
c Write a note on recycling of polymers  04