

Dr Himanshu

6/12/2022

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(M)

National Institute of Technology, Hamirpur (H.P.)

Name of the Examination: M.Sc Chemistry (3rd semester) End –Term Examination

Course Name: Polymer Chemistry

Course Code: CY-704

Time: 3 hours

Total Marks: 50

Note: All questions are compulsory

Section A

- (a) State the differences between Addition and condensation polymerization?
(b) Write short note on the addition polymerization of Lactams? (2+3)
- What is the technique used for polymerization of water insoluble monomers? Explain the separation of polymer as a bead or pearl? (5)
- A polymer has the following composition: 200 molecules of mass 1500g/mol, 250 molecules of molecular mass 2000g/mol and 400 molecules of molecular mass 4000 g/mol. Calculate its number and weight average molecular weight? (5)

Section B

- Explain the term glass transition temperature? Discuss the relationship between molecular weight and mechanical property of the polymer? (2+3)
- Explain Anionic addition polymerization with mechanism using suitable example? (5)
- Explain kinetics of copolymerization in detail? (5)

Section C

- (a) What is ring opening metathesis polymerization?
(b) Write short note on the step growth polymerization of polyesters? (3+2)
- What is ATRP. Explain the term living polymerization? (5)
- (a) What is Complex catalyst polymerization. Write mechanism of reaction using Ziegler Natta Catalyst?
(b) Explain the effect of solvent on polymerization? (7+3)