xv) Discuss Flory Huggin's theory of Polymer Solution.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 Derive copolymerisation equation using free radical copolymerisation mechanism.

Q.4 Discuss:

a) Emulsion polymerisation.

b) Mayo's lewis method.

Q.5 Write short note on:

a) Thermodynamics of Polymer solutions.

b) Calorimetric technique for Tg determination.

Q.6 Discuss Ziegler-Natta polymerization in detail.

Q.7 Give salient features of-

a) Free radical polymerization

b) Ionic polymerization.

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4th Sem. / Plastic Technology

Subject : Polymer Science and Technology-II

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) What are copolymers?

b) Define reactivity ratio.

c) What is Glass transition temperature?

d) Define number average molecular weights.

e) What are amorphous polymers? Give example.

f) What is intrinsic viscosity?

g) What is LED?

h) Give the names of techniques used for determination of Tg?

i) What is condensation Polymerization?

j) State Debye's equation.

k) What is time dependant behaviour of viscosity of polymers?

l) What are Azeotropic compositions?

m) State Newton's equation for ideal liquids.

n) Give relation between Molecular weight of polymers & freezing of temperature.

o) What is DSC.

p) What is internal Brownian movement?

q) Define crystallisability.

r) Name two components of Ziegler-Natta Catalyst.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) State the relation between Tm (melting temperature) and Tg (Glasstransition temperature).

ii) Explain Polymer dissolution.

iii) Discuss Gel permeation chromatography technique.

iv) Explain Dilatometric method for

determination of Tg.

v) Find No. average Molecular weight for polymer sample of Polyethylene.

S.No.	No. of Monomers	Weight of Monomer units	Total Weight of (polymer)
1	200	1000	200000
2	300	1200	360000
3	400	1500	600000

vi) State and explain power law of fluids.

vii) Explain factors effecting Tg of polymers.

viii) What is light scattering techniques?

ix) Explain Auto acceleration phenomenon.

x) What is ceiling Temperature? Explain its importance.

xi) Explain vapour phase osmometry.

xii) Discuss chain transfer agents & their importance.

xiii) Explain Bulk polymerisation technique.

xiv) Discuss Cryoscopy technique for Mol. weight determination of Polymers.