

DEPARTMENT OF CHEMISTRY
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
FIRST SEMESTER EXAMINATION 2012/2013 SESSION

COURSE CODE: CHM 315

COURSE TITLE: POLYMER CHEMISTRY

3 UNITS

INSTRUCTIONS: ANSWER ANY FOUR QUESTION

TIME ALLOWED: 2 HOURS

1. (a) Distinguish between Block copolymer and Graft copolymer

(b). Complete the table below

Polymer	Monomer	Repeating unit
Poly(Vinylchloride)		
Poly(Vinylacetate)		
Polystyrene		
Polyisoprene		
Polytetrafluoroethylene		

(c). Show by equation the polymerization of phenol and methanal to form a phenol-formaldehyde

2. (a). Differentiate between static and dynamic equilibrium

(b). State the Vant Hoff's equation and define all the terms

(c). Explain the operating principle of Osmometry

3. (a). Name and explain the working principle of Gel Permeation Chromatography.

(b). Enumerate any five draw back of Gel Permeation Chromatography.

(c). Explain briefly the folder chain lamellar model and extended crystalline model

4. (a). Define the mechanical properties of polymers

(b) Enumerate any three factors governing the mechanical properties of a particular polymer

(c) List any four factors that induce polymer crystallinity

5. (a). Distinguish between Fibers and Plastics

(b) What is the molecular weight of polyester if 1.2 cm³ of 0.1M of KOH were required for neutralization of 0.5 g of polymerization sample with COOH group as end group

(c) Write short note on the following

(i) Industrial polymerization (ii) Tacticity