



Eastern University, Sri Lanka

First Year Second Semester Examination in Science-2010/2011

(April/May 2012)

CH 105 Introduction to Polymer Chemistry

(Proper and Repeat)

Answer all questions

Time: 01 hour

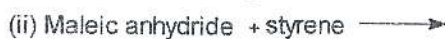
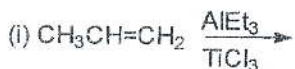
1. (a) What is copolymer and classify the different types of copolymer with example(s).

(10 Marks)

(b) Explain the differences between thermoplastic and thermoset polymers.

(20 Marks)

(c) Write a mechanism for the following reaction.



(40 Marks)

(d)(i) Write down the three basic steps involved in cationic polymerization of $\text{CH}_2=\text{CHR}$ and the end products.

(20 Marks)

(ii) Explain why head to head termination reaction is difficult in polymerization of $\text{CH}_2=\text{CHCN}$.

(10 Marks)

Contd...

2. (a) Define the term 'degree of polymerization'.

(10 Marks)

(b) Write down the different types of the degree of polymerization with suitable equations.

(20 Marks)

(c) Derive the Carothers equation for the number average degree of polymerization in step growth polymerization.

(20 Marks)

(d)(i) What are the significant differences between Glass Transition temperature and Melting Point.

(20 Marks)

(ii) Draw plots of specific volume vs. temperature for amorphous and crystalline polymer and explain its significance.

(30 Marks)