



NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE
EXPRESS WAY, JABI - ABUJA.

FACULTY OF SCIENCE

OCTOBER/ NOVEMBER, 2016 2016 EXAMINATION

COURSE CODE: CHM 302

COURSE TITLE: Polymer Chemistry 1

CREDIT UNIT: 2

TIME: 2 Hours

INSTRUCTION: Answer any Four Questions

QUESTION ONE

1ai) Distinguish between the following terms:

- i) Polymer
- ii) Monomer
- iii) Polymerization

1aii) Give three examples of natural and synthetic polymers.

1b) Enumerate on classification of polymers.

QUESTION TWO

2a) State and explain the two basic patterns of polymerization.

2b) Write the reaction showing the formation of Polyethylene.

QUESTION THREE

3a) In each of the underlisted addition chain growth reactions below, outline the causes of the following terms-

- i. Termination of the Cationic Addition- Chain growth reaction
- ii. Termination of the Anionic Chain growth reaction
- iii. Termination of the Radical Chain growth reaction

3b) Differentiate between Homopolymers, Copolymers and Terpolymers.

QUESTION FOUR

4a) What is Cross-linking?

4b) Discuss briefly the effect of cross-linking on polymers

4c) What effect does vulcanization have on natural rubber?

QUESTION FIVE

5a) Write short notes on the following:

- I. Elastomers
- II. Fibers
- III. Resins
- IV. Thermosetting
- V. Thermoplastics

5b) State the main source of raw materials for the production of polymers.

QUESTION SIX

6a) Mention and describe the types of polymer configuration.

6b) Write briefly on the effect of polymer configurations on the physical properties of polymers.

6c) Explain biodegradation in polymers.

