

**National Open University of Nigeria**

**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**

**Faculty of Science**

**OCTOBER, 2018 EXAMINATIONS**

**COURSE CODE: CHM408**

**COURSE TITLE: POLYMER CHEMISTRY**

**CREDIT: 2 Units**

**TIME ALLOWED: 2 Hours**

**INSTRUCTION:** **Answer Question ONE (1) and any other THREE (3) Questions**

**QUESTION 1**

1a. what is addition polymerization? **(3 marks)**

b. Explain with appropriate structural diagrams the various arrangements of monomers. **(6 marks)**

c. Using appropriate examples discuss the various types of copolymer. **(6 marks)**

d. Give six differences between thermoplastics and thermosets **(3 marks)**

e. Enumerate the advantages of polyurethane **(4 marks)**

f. What is polymer degradation? **(3 marks)**

**QUESTION 2**

2a. with typical example discuss anionic polymerization. **(5 marks)**

b. Differential between chain propagation and chain termination **(5 marks)**

c. Explain the propagation of ionic chain carrier. **(5 marks)**

**QUESTION 3**

3a. Use two typical examples to explain the mechanism of condensation

Polymerization. **(5 marks)**

b. Enumerate the characteristics of condensation polymerization. **(5 marks)**

c. With typical examples, mention five condensation polymers and their use

**(5 marks)**

**QUESTION 4**

4a. What is geometrical Isomerism? **(5 marks)**

b. Differentiate between homopolymer and copolymer **(2 marks)**

c. In a tabular form represent various types of polymers and their dissolution solvents. **(8 marks)**

**QUESTION 5**

5a. what is polymer degradation? **(3 marks)**

b. Explain the physical methods of polymer degradation **(6 marks)**

c. Discuss mechanical properties of polymers with emphasis on the factors that affect it.

**(6 marks)**