NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
JANUARY/FEBRUARY 2013 EXAMINATION

CHM 408: POLYMER CHEMISTRY

Duration: 2 hrs

Answer any four questions (each question carriers a total 17 $\frac{1}{2}$ marks)

Question 1
a) Define the term Polymerization. Give five examples of addition polymer.
b) Differentiate between condensation polymer and addition polymers.

Question 2
a) Discuss in detail each of the following isomerism
i) Orientational isomerism ii) Configurational isomerism
iii) Geometrical isomerism iv) Structural isomerism
b) Differentiate between tactic and atactic polymers

Question 3
a) Discuss in detail with structural examples type of copolymers
b) State any five advantages of copolymerization
c) Define copolymerization

Question 4
a) Differentiate between the types of polymer solvents
b) Discuss the solution process which occur when a polymer is added to a solvent
c) Explain how the following affects polymer solubility:
i) polarity ii) cross linking iii) molecular weight iv) branching

Question 5
a) Enumerate seven differences between thermoplastic and thermosets
b) State five instrustrial applications each of the following thermoplastics
i) Polypropylene ii) Polyethylene terephthalate
c) State atleast five properties of an epoxides thermosetting polymer

Question 6
a) Discuss in detail the mechanical properties of polymers
b) Enumerate five agents of degradation and likely susceptible polymers.

c) Define polymer degradation and enumerate types of polymer degradation.

d) Enumerate five agents of degradation and likely susceptible polymers