THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

CERTIFICATE IN BUILDING & CONSTRUCTION

CE2 C1107: CHEMISTRY

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: OCTOBER 2012
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (20 Marks)

a) Describe the structure of an atom. **(4 marks)**

b) State **FOUR** properties of metallic bonding **(4 marks)**

c) Briefly explain the use of PVC products in construction industry. **(4 marks)**

d) Define the following terms:
- **i)** Reducing agent
- **ii)** Oxidizing agent
- **iii)** Oxidation
- **iv)** Reduction

e) Differentiate between weak acid and strong acid. **(4 marks)**

f) State the causes of temporary and permanent hardness of water. **(6 marks)**

g) Define the following terms:
(i) Electrolysis
(ii) Conductivity

Question Two (20 Marks)

a) State **TWO** types of polymers giving **TWO** examples in each case. **(6 marks)**
b) Explain why the strength of polymers increases with increase of chain. **(8 marks)**
c) State **THREE** types of radioactivity emissions. **(3 marks)**
d) List down **SIX** characteristics of polymers. **(3 marks)**

Question Three (20 Marks)

Describe the periodic trend of: **(15 marks)**

- **i)** Electronegativity
- **ii)** Ionization
- **iii)** Melting point
- **iv)** Atomic radius

Across the group give reason for your answer.

Question Four (20 marks)

a) Define the term half-life. **(2 marks)**

b) A radioactive source contains 5.1 x 1015 atoms and 5000 nuclei delays per second what its half-life. **(3 marks)**

c) Using relevant examples, explain the use of radiation in modern world. **(10 marks)**