THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

BACHELOR OF ENGINEERING IN BUILDING & CIVIL ENGINEERING (BSCE)
[Institutional Based Programmes]

EBC 4415: PUBLIC HEALTH ENGIENERING II

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2012
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (30 marks)

a) What are the major effects of salinity in plant growth? **(6 marks)**

b) Define the term adsorption. How is it applied in wastewater treatment? **(14 marks)**

c) Make short notes on the following:

(i) Source substitution
(ii) Pollution abetment
(iii) Waste water re-use application. **(10 marks)**

Question Two (20 marks)

a) Discuss **FIVE** important processes of sludge treatment. **(10 marks)**

b) What are the main factors affecting the process of adsorption? **(8 marks)**

c) Differentiate between adsorbate and adsorbent **(2 marks)**

Question Three (20 marks)

a) Discuss the importance of constructed wetlands in waste water treatment citing their advantages and disadvantages. **(15 marks)**

b) What are the main potential consideration of reclaimed waste water for agriculture and urban settlement? **(5 marks)**

Question Four (20 marks)

a) Discuss briefly the urban re-use of waste water. **(10 marks)**

b) Make short notes under the following sub-topics.

(i) Metallic corrosion
(ii) Biological growth
(iii) Scaling concerns
(iv) Fouling **(10 marks)**

Question Five (20 marks)

a) Explain briefly the following terms as used in wastewater treatment process.
(i) Oxidation ponds
(ii) Activated sludge
(iii) Trickling fitters
(iv) Batch adsorption **(8 marks)**

b) Define the term onsite waste water treatment (OWTS). Discuss its importance and challenges associated with the system in waste water treatment. **(12 marks)**