FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE
OF BACHELOR IN CIVIL ENGINEERING

EECQ 4241 : PUBLIC HEALTH ENGINEERING II

DATE: April 2015
                                                    TIME: 2HOURS

INSTRUCTIONS: FIVE QUESTIONS.
              ANSWER ANY THREE QUESTIONS.

QUESTION ONE (20 MARKS)

a) The following are guides to drinking water treatment technologies for household use, explain their uses. –microfiltration, distillation system, ultraviolet treatment systems (with pre-filtration)   (10 marks)

b) Outline five urban challenges in environmental sanitation planning for the urban poor.   (10 marks)

QUESTION TWO (20 MARKS)

a) Discuss the following options that can be used for solving a water quality problem. –develop a new Water Supply –treat the water   (5 marks)

b) Explain the following statistical analysis methods of water quality data.
          –standard deviation   (3 marks)
          –geometric mean   (4 marks)
          –flow-weighted mean   (5 marks)
c) Outline the quality considerations of wastewater reuse in relation to irrigation on salinity and Sodium Adsorption Ratio (SAR).   (3 marks)

QUESTION THREE (20 MARKS)

a) Discuss the automatic open loop control and forward control as process control strategies for wastewater, in relation to application, implementation, advantages and disadvantages.   (5 marks)
b)i) State three general categories for safe storage of treated water in the house.
                                                        (3 marks)

ii) Discuss water chlorination at household level.   (6 marks)

QUESTION FIVE (20 MARKS)

a) State four reasons for shoring of a structure

(4marks)

b) Using a sketch

   i.   illustrate raking shores to a story building

   ii. a arrangement for flying shores

(8marks)

c) Describe underpinning by

   i.   Load transfer to adjacent soil

   ii. Continuous pit method

(8marks)