



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

HIGHER DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC 3208 PUBLIC HEALTH ENGINEERING

SPECIAL/SUPPLEMENTARY EXAMINATIONS

SERIES: APRIL 2011

TIME: 2 HOURS

Instructions to Candidates:

Attempt Question **ONE** and any other **TWO** Questions.

COMPULSORY (30 MARKS)

Question ONE

- (a) State the **THREE** conventional methods of expressing the oxygen demand of a wastewater. (6 Marks)
- (b) State **FIVE** factors that influence the choice of sewage treatment plant technology.(10 Marks)
- (c) Briefly explain the following low cost sanitation terms (use simple sketches for illustration): (10 Marks)
- (i) Aqua privy
 - (ii) Black water
 - (iii) Grey water
 - (iv) Absorption trenches
 - (v) Seepage pit
- (d) State **FOUR** factors that influence the estimation of sewage design flow from an area. (10 Marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION (20 MARKS)

Question TWO

- (a) In any sewer system, manholes are provided to facilitate operation and maintenance. State **FIVE** conditions which dictate the provision of manholes in a sewer line. (10 Marks)
- (b) Briefly describe **FIVE** design objectives of a septic tank. (10 Marks)

Question THREE

- (a) Briefly describe the **SIX** main wastewater treatment processes that take place in a septic tank. (2 Marks)
- (b) State the **FOUR** main objectives of waste water treatment. (8 Marks)

Question FOUR

- (a) Infiltration of groundwater into a sewer depends on a number of factors. Briefly describe **SIX** of these factors. (12 Marks)
- (b) Briefly state **TWO** advantages and **TWO** disadvantages of a combined sewerage system. (8 Marks)