



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

**DIPLOMA IN CIVIL ENGINEERING (DC 10A)
DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBC 10A)**

EBC 2309: CIVIL ENGINEERING CONSTRUCTION II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer booklet*
- *Drawing Instruments*

This paper consists of **FIVE** questions

Answer question **ONE (COMPULSORY)** from **SECTION A** and any other **TWO** questions from **SECTION B**

Maximum marks for each part of a question are clearly shown

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question 1

- a) With the aid of a sketch, explain the working of a biological filter (10 marks)
- b) State **FIVE** factors to consider when locating a site for a sewerage treatment works (5 marks)
- c) With the aid of a sketch, briefly describe the construction of a suspension bridge (12 marks)
- d) State **THREE** functions of a railway sleeper (3 marks)

SECTION B (Answer any *TWO* questions from this section)

Question 2

- a) With the aid of a sketch, explain the operation of a slow sand filter (10 marks)
- b) Define the following:
 - (i) Disinfection
 - (ii) Break-point
 - (iii) Seeding
 - (iv) River intake
 - (v) Coagulant(10 marks)

Question 3

- a) Outline the factors to consider when designing a Septic tank (10 marks)
- b) Explain the construction of a rockfill dam (10 marks)

Question 4

- a) (i) State **THREE** circumstances that necessitate the construction of causeways
(ii) Sketch and label a section through a bed level causeway (10 marks)
- b) (i) Define the term Reclamation
(ii) State the **FOUR** factors on which liquefaction potential of a soil depends (6 marks)
- c) (i) Briefly explain the term extraction as used in dredging
(ii) State the **TWO** operations involved in undertaking the process in c(i) above (4 marks)

Question 5

- a) (i) Define the term culvert
(ii) Explain the **THREE** main differences between culverts and bridges (8 marks)

- b) Sketch and label a section through Macadam road construction (5 marks)
- c) State the **FOUR** main situations that would demand construction of sub-base in roads (4 marks)
- d) Describe Asphalt concrete (3 marks)