



# 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 & COMPUTER (DCC 09)**  
**DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBC 09)**  
EBC 2322: MEASUREMENT OF CIVIL ENGINEERING WORKS

**END OF SEMESTER EXAMINATION**

SERIES: DECEMBER 2011

**TIME: 2 HOURS**

## **Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*
- *Pocket calculator*
- *Dimension papers*
- *A copy of the Civil Engineering Standard Method of Measurement*

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 **TWO** printed pages

## SECTION A (COMPULSORY)

### Question 1 (30 marks)

A cutting is to be excavated for a road 300 M in length and 18 M in width, to an even gradient with mean depths calculated at 50M intervals as indicated below and side slopes 2 to 1. Prepare a table for the cutting and take off all quantities for the excavations general material for disposal, including excavation ancillaries (Use CESMM). (30 marks)

CROSS SECTION	1	2	3	4	5	6	7
MEAN DEPTH (M)	9	16	15	12	18	14	11

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

### Question 2 (20 marks)

- a) Explain and distinguish the following terms as used in Measurement of Civil Engineering works:
- (i) Original surface
  - (ii) Final surface
  - (iii) Excavated surface
  - (iv) Commencing surface
- (12 marks)
- b) State **FOUR** items that are priced under Method Related Charges, and distinguish the difference between time related and fixed charges (8 marks)

### Question 3 (20 marks)

Drawing No. 01 shows a section and plan of a Mass Concrete Retaining wall 120M long. Take off quantities for the Mass Concrete bases and walling and including concrete ancillaries but excluding all other items and Earthworks (Use CEMM) (20 marks)

### Question 4 (20 marks)

Take off all quantities for the site clearance and demolition works shown in drawing no 02. (Use CESMM) (20 marks)

### Question 5 (20 marks)

Drawing No. 03 shows a section through a Quay 96m long. Take off quantities for the Piling works only up to and including piling ancillaries (Use CESMM) (20 marks)