



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
**DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 12S)
DIPLOMA IN ARCHITECTURE (DA 12S)**

EBC 2213: MEASUREMENTS OF BUILDING WORKS

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2013

TIME ALLOWED: 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 **THREE** printed pages

Question One

Take off all quantities for the substructure works shown in drawing no 01 up to and including the DPC.
(30 marks)

Question Two

- a) Differentiate between elemental and trade by trade bills (6 marks)
b) Explain the meaning of the term preliminaries and list EIGHT examples of preliminaries. (7 marks)
c) Describe the following processes of tendering:
(i) Open tendering
(ii) Selective tendering (4 marks)

Question Three

- a) State any FOUR types of building contracts and briefly describe them. (12 marks)
b) Differentiate between a nominated supplier and a domestic supplier. (2 marks)
c) Define the following terms:
(i) Provisional sum
(ii) Prime cost sums
(iii) Contingency sums
(iv) Tender sum (6 marks)

Question Four

- a) Briefly describe the following processes of Bills of Quantities preparation.
(i) Taking off
(ii) Working off (10 marks)
b) Describe the following in taking off:
(i) Grouping of dimension
(ii) Nilling
(iii) Timesing
(iv) Dotting on (10 marks)

Question Five

With the use of the data given build up a unit rate for excavating basement commencing from ground level and not exceeding 1.50m deep (per m³) (20 marks)

Data

- Basement size 75 x 40 x 150m deep
- Purchase price of 0.50m³ capacity excavator shs 8,000,000/=
- Excavator cycle time

- Excavator efficiency 80%
- Economic plant life 5 years
- Working hours per annum 1800 hours
- Interest on capital 10% per annum
- Insurance, taxes, maintenance, repairs 30% of annual depreciation
- Diesel consumption per 8 hour day 100 litres
- Diesel cost 100 shs/litre
- Lubricating oil per week 10 litres @400ksh/litre
- Haulage to and from site kshs 300,000 per annum
- Skilled labour per hour 150ksh
- Unskilled labour per hour 80 ksh
- Assume any other necessary information