TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING

EBC 2308: ESTIMATING & COSTING

END OF SEMESTER EXAMINATION
SERIES: APRIL 2015
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 of the **FIVE** questions
Maximum marks for each part of a question are as shown
Use neat, large and well labeled diagrams where required

This paper consists of **THREE** printed pages

Question One

Build up a unit rate for the following preliminary works.

(i) Water for works
(ii) Site watchman
(iii) Site foreman
(iv) Site store
(v) Site Canteen **(20 marks)**

Question Two

a) State FIVE factors that affect the operating cost of a mechanical plant **(5 marks)**

b) Describe the following methods of depreciation of a mechanical plant **(7 marks)**
(i) Straight Line Method
(ii) Sum of Number of Years Method

c) Calculate the hourly owning cost of a mechanical plant using the data given below **(8 marks)**

Data
(i) Plant purchase price ksh 3,000,000/-
(ii) Plant life 4 years
(iii) Plant value ksh 800,000/=
(iv) Plant operates 1000 hour per year
(v) Insurance 105 of purchase price annually
(vi) Interest on capital at 15% annually
(vii) Yearly maintenance @505 of yearly depreciation
(viii) Use straight line method of depreciation

Assume any other necessary information

Question Three

a) Describe the following methods of approximate estimating giving advantages and disadvantages of each method:
(i) Approximate quantities method
(ii) Functional unit valuation method **(8 marks)**

b) Briefly explain the following:
(i) Unit rate
(ii) Labour constant
(iii) All in labour rate
(iv) All-in-machine rate **(8 marks)**

c) Describe the Aspects of overheads and give SIX example of contradictors overhead **(4 marks)**

Question Four

Build up a unit rate for the following using the data given in Appendix A:

a) Cement sand plaster mix 1:4 20mm thick (per m^2) **(8 marks)**
b) 150mm thick concrete block wall in cement mortar mix 1:3 (per m3) **(12 marks)**

Question Five

a) Build up a unit rate for reinforced concrete mix 1:2:4 20mm aggregates in foundation (per m^3) using data given in Appendix A **(14 marks)**

b) Build up a unit rate for reinforcements 12mm diameter High tensile steel bars (per kilogramme) use data given in appendix **(6 marks)**

Appendix A

1) Cement 50kg Bag @ 700 ksh
2) Sand 1m3 @ 1500/-
3) Aggregate 1m3 @ 3000/-
4) Cement Density = 1440kg/m^3
5) Cement density = 1500kg/m^3
6) Aggregates density = 1500kg/m^3
7) Block size 200 x 200 x 100 @ 100ksh
8) Reinforcement 1 bar 12mm ϕ at 1000ksh
9) 9 bars size 12mm ϕ makes 100kgs
10) Binding wire @ 150 ksh/kg

Assume any other necessary information