TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE)

EBC 2308: ESTIMATING & COSTING

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Pocket Calculator*

This paper consists of **FIVE** questions. Answer any **THREE** questions of the **FIVE** questions
All questions carry equal marks
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

a) Define estimating and costing. **(2 marks)**

b) Outline THREE constituents of contracts without quantities. **(3 marks)**

c) Briefly describe FIVE sources of cost data. **(5 marks)**

d) Explain the difference between direct and indirect overhead costs giving TWO examples of each. **(4 marks)**

e) Define the term "price analysis" **(6 marks)**

Question Two

a) Calculate the unit rate of excavating an embarkment 6m logn by 4m wide by 4m deep using a tyred face shovel given the following data.

Purchase price – 18million
Resale value – 4.5 million
Useful life - 6 years

Average annual repairs and maintenance – 780,000
Taxes and insurance – 55 of depreciation
Operator – 10,000/= per week
Lubricating oil – 5 litres per week @180/-
2No Banks men @500/= per day
Tyres – 3 sets @ 620,00
Cutting edges – 2 sets @ 120,000
Overheads and profits – 20%
Plant output – $4.2m^2$/hr **(20 marks)**

Question Three

a) Calculate the unit rate of the following given the data below.
Excavate basement commencing from stripped level but not exceeding 3m deep
Take 2/3% of the volume to be excavated by machine while 1/3 by manual labour.

Data:
Manual output – $4m^3$/hr
Total volume to be excavated – $4800m^3$
Machine hire rate – 23,000 per week
Machine output – $30m^3$/hr
Hourly running cost – 350/=
One week – 50 hours
Manual labour – 120/= per hour
Overheads and profits – 25% **(14 marks)**

b) Briefly describe the following terms:

(i) Cost planning
(ii) Cost study
(iii) Cost check **(6 marks)**

Question Four

a) Build up unit rate for:
Vibrated reinforced concrete 1:2:4 in 150mm thick foundation bed given the following data:

Cement – 78% per bag
Ballast – 15000/- per 7 ton lorry
Sand – 8000/- per 8 ton lorry
Concrete mixer hire – 5000/- per day
Vibrator hire – 5000/- per day
Mixer output 2.8m3/hr
Skilled labour – 100% per hour
Unskilled lbaour 50% - per hour
Profits and overheads – 20%
Assume an 8 – hour day
Operator – 1000/= per day **(16 marks)**

b) Briefly explain the "storey enclosure" method of approximation estimating. **(4 marks)**

Question Five

a) Build up unit rate for the following:

"Sawn softwood formwork in 300x x 450mm deep beam " given the following data:
Cost of softwood – 15000/= per m^3
Nails – 150/= per kg
Mould oil – 1 litre covers $2m^2$ @ 80/=
Skilled labour 100/= per hour
Unskilled 50/= per hour
Props – 150/= each
Overheads and profit – 30% **(20 marks)**