TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA

EBC 2308 : ESTIMATING AND COSTING OF BUILDING AND CIVIL ENGINEERING WORKS

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

- Pocket calculator

-This paper consists of **FIVE** questions. Attempt any THREE questions.

Do not write on the question paper.

Mobile phones are not allowed in the examination room.

Use the data given in appendix 'A' in addition to the information given in the question for prices build up. Assume any other necessary information.

Question ONE

a. Outline the duties of an estimator in a project **(5marks)**

b. Briefly explain the following:
   i. Unit rate
   ii. Labour constant
   iii. All-in-labour rate
   iv. All-in- machine rate **(6marks)**

c. Briefly describe THREE sources of cost information **(6marks)**

d. List the items considered in price build up **(6marks)**

Question TWO

a. Describe the following approximate estimating methods . **(6marks)**
   i. Storey enclosure method
   ii. Cubic method

b. State six factors that affect the operating cost of a mechanical plant **(3marks)**

c. Describe the following methods of depreciation mechanical plant
   i. Straight line method
   ii. Sum of number of years method **(6marks)**

d. Build up unit rate for the following preliminary works
   i. Site foreman
   ii. Site water for works **(5marks)**

Question THREE

Build up the hourly rate of owning and operating a back hoe excavator using the given information in the appendix 'A' **(20marks)**

Question FOUR

Build up a unit rate for the following

a. Excavate pit for column bases commencing from ground level and not exceeding 1.50mm deep c.m. **(5marks)**

b. Reinforced concrete mix 1:2:4 20mm aggregates in foundation trenches (250mm thick) in c.m **(10marks)**

c. Damp proof membrane in substructure works per s.m **(2 marks)**

Question FIVE

a. Define the following terms used in estimating and costing
   i. Market
   ii. Cost plan
   iii. Cost check **(4marks)**

b. Define any FOUR sources of cost information **(6marks)**

c. Differentiate between profits and overheads **(3marks)**

d. List any SIX constituents of a contractors overheads **(3marks)**

Appendix A

General information
Labour skilled @ 100ksh/hr
Labour unskilled @50ksh /hr

Materials

Cement 50kg bags	700ksh/bag
Sand	1500ksh/tone
Aggregates	2000ksh/tonne
Cement density	1440kg/m^3
Sand density	1500kg/m^3
Aggregates density	1500kg/m^3
Damp proof membrane	50ksh/m^2

Backhoe

Purchase price of new backhoe	
Economic working life of back hoe	
Scrap value of backhoe	
Working hours per year	
Haulage cost to and from site per year	
Licenses and taxes per annual	10% of annual
Interest per year	10% of initial cost depression
Insurance per year	3% of initial cost
General maintenance and repairs per year	30% of annual depreciation
Fuel per 8 hours of working day	ksh 3,000 depreciation
Lubricant per week	10 litres @400ksh/hr