MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

THIRD YEAR **SECOND** SEMESTER EXAMINATION FOR, DIPLOMA IN CIVIL ENGINEERING

SEB 1317 - ESTIMATING AND COSTING

DURATION: 2 HOURS

DATE: 10/12/2018

TIME: 9.00 - 11.00 A.M.

Instructions to candidates:

1. Answer question One and Any Other Two questions
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a. Define the term unit rate and state its components (6 Marks)

b. Highlight FOUR roles of an estimator in construction industry (4 Marks)

c. Explain the following types of construction wastes

   i. Direct waste

   ii. Indirect waste (4 Marks)

d. Highlight FOUR reasons for using construction plants rather than manual work (4 Marks)

e. Explain TWO types of overheads cost giving TWO examples under each (6 Marks)

f. Differentiate between cube method and floor area method of approximate estimating (6 Marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a. State FIVE sources of costing information (5 Marks)

b. Build up rate for reinforcement bar including tying, bending and spacing blocks per kg
   Use the data in Appendix II (15 Marks)

QUESTION THREE (20 MARKS)

a. Outline FIVE reasons for the rates quoted for concrete works by different contractors may differ from each other (5 Marks)

b. Build-up unit rate for vibrated reinforced concrete (1:2:4) in 150mm thick suspended slab (per m^2). Use the date in **Appendix II I** (15 Marks)

QUESTION FOUR (20 MARKS)

a. Explain THREE categories of costs. (6 Marks)

b. Build up unit rate for hiring a tipper per hour. Use the data in Appendix V below. (14 Marks)

APPENDIX

I. GENERAL INFORMATION

Skilled Labour	Ksh. 90
Unskilled Labour	Ksh. 40
Density of cement	1,440 kg/m^3
Density of sand	1,700 kg/m^3
Density of ballast	1,500 kg/m^3

Assume any other necessary information.

II. REINFORCEMENT BAR

Cost of 16 mm reinforcement bar	Ksh. 1,000 Full Length
One bar 12 m full length	
Cost of binding wire per kg	Ksh. 200

Assume 80 working hours for the entire work

Assume 1000 kg reinforcement bar

III. CONCRETE WORKS

Cement per 50 kg Bag	Ksh. 750
Sand per m^3	Ksh. 2,500
Ballast per tonne	Ksh. 2,000
Cost of hiring a mixer including running charges per day	Ksh. 10,000
Output of mixer per hour	3 m^3

IV. TIPPER

Purchase price	Ksh. 7,500,000
Life span	5 Years
Resale value	Ksh. 2,800,000
No. of hours worked in a year	1,800 Hours
No. of hours worked in a week	4 Hours
Oil consumption per week	8 Litres @Ksh. 3000 per Litre
Diesel consumption per day	5 Litres @ Ksh. 110 per Litre

Haulage to and from site per day	Ksh. 2,000
Repair and maintenance per week	Ksh. 3,000
Insurance and taxes per annum	5% of purchase price
Cost of a pair of tire	Ksh. 30,000
Tires are changed twice a year	
Tipping fee per week	Ksh. 3,000