



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ARCHITECTURE & BUILT ENVIRONMENT
UNIVERSITY EXAMINATION FOR:
DIPLOMA IN QUANTITY SURVEYING
EQS 2206: ESTIMATING AND COSTING I
END OF SEMESTER EXAMINATION
YEAR TWO, SEMESTER TWO

SERIES: MAY 2025

TIME: 2 HOURS

DATE: MAY, 2025

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

QUESTION ONE (Compulsory)

(30 marks)

- (a) Define a “unit rate” in construction estimating. (2 marks)
- (b) Explain FOUR components of a unit rate. (8 marks)
- (c) Identify FOUR uses of unit rates in a construction project. (4 marks)
- (d) Explain any FIVE categories of waste that may arise in a construction project. (10 marks)
- (e) Identify SIX roles of an estimator in the construction industry. (6 marks)

QUESTION TWO

(15 marks)

Using the data given in the table below, build up a unit rate for vibrated reinforced concrete (1:3:6) works in columns (per cubic metre).

S/No.	Description	Values
1.	Skilled labour per hour	KES. 200
2.	Unskilled labour per hour	KES. 100
3.	Cost of cement per bag	KES. 800
4.	Cost of ballast per tonne	KES. 2000
5.	Cost of sand per tonne	KES. 1800
6.	Density of cement	1440 kg/m ³
7.	Density of ballast	1700 kg/m ³
8.	Density of sand	1600 kg/m ³
9.	Hire rate of mixer and vibrator per day	KES. 8000
10.	Output of mixer per hour	2.5m ³
11.	Shrinkage of concrete	25%
12.	Working hours per day	8 hours

The cost of materials indicated includes the costs of delivery to site.

Make necessary assumptions and indicate them in your workings for any information that is not given. (15 marks)

QUESTION THREE (15 marks)

Twiga Construction Limited acquired a 10/7 diesel-operated concrete mixer sold at KES. 950,000. The money was borrowed from a financier who charged an 18% compound interest rate per annum. Assuming the loan repayment period is 24 months; the estimated plant life is 10 years, with a salvage value equivalent to 20% of the original value; calculate:

- a) Annual depreciation of the concrete mixer using the straight-line method. (6 marks)
- b) Total annual ownership costs (static charges) of the mixer, making the necessary assumptions. (9 marks)

QUESTION FOUR (15 marks)

Using the data given in the table below, build up a unit rate per square for 200 mm thick concrete block superstructure walling, bedded and jointed in cement and sand mortar (1:4):

S/No.	Description	Values
1.	Skilled labour per hour	KES. 200
2.	Unskilled labour per hour	KES. 100
3.	Cost of cement per bag	KES. 800
4.	Cost of sand per tonne	KES. 1800
5.	Density of sand	1600 kg/m ³
6.	Density of cement	1440 kg/m ³
7.	Hire rate of the mixer per day	KES. 8000
8.	Output of mixer per hour	2 m ³
9.	Shrinkage of mortar	20%

10.	Cost of block size 390 x 190 x 190 mm per piece	KES. 120
11.	Percentage for profits and overheads	20%

Make any other necessary assumptions and indicate them in your workings for any information that is not given. (15 marks)

QUESTION FIVE **(15 marks)**

Using the data given in Question Four above, build up a unit rate for 15 mm thick plaster (1:4) to wall surfaces per square metre. Make any other necessary assumptions and indicate them in your workings. (15 marks)