



TECHNICAL UNIVERSITY OF MOMBASA
SCHOOL OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR:

DIPLOMA IN CIVIL ENGINEERING
DCE 2313 ESTIMATION AND COSTING

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: JULY 2025
TIME: 2 HOURS

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 any **THREE** questions.

Do not write on the question paper.

QUESTION ONE (20 Marks)

- (a) Explain the following terms as used in estimation
 - (i) Unit rate
 - (ii) All in labour rates (4 Marks)
- (b) State 4 sources of cost information to an estimator . (4 Marks)
- (c) List down the reason for using construction plants on site. (4 Marks)
- (d) Using hypothetical examples discuss the preliminary item namely power supply (8 Marks)

QUESTION TWO (20 Marks)

- (a) List down the roles of a quantity surveyor. (4 Marks)

- (b) Define the term labor constant. (2 Marks)
- (c) Using the data given below, build up unit rates for 150mm thick vibrated reinforced concrete (1:2:4) in suspended slab per m²
- (i) skilled labor ksh 50 per week
 - (ii) unskilled labor ksh 25 per hour
 - (iii) cement per 50kg bags shs 800 density 1440kg/ m³
 - (iv) sand per tonne ksh 1500 density 1700kg/ m³
 - (v) hire of mixer and vibrator ksh 8000 per hour
 - (vi) output of mixer 2.5 m³ /hr.
 - (vii) assume any other relevant information (14 Marks)

QUESTION THREE (20 Marks)

- (a) Discuss the role of an estimator during pre-tendering period. (4 Marks)
- (b) State four sources of cost information to an estimator. (4 Marks)
- (c) Build up rates for 12mm terrazzo paving (1;3) including grinding and polishing surface per m² given the data below
- (i) Skilled labor and unskilled labor sh80 and sh 40 respectively
 - (ii) Cost of white cement 50 kg ksh 1000
 - (iii) Cost of terrazzo chipping per 50kg ksh 600
 - (iv) Density of white cement 1440kg/m³
 - (v) Density of chipping 1400 kg/ m³
 - (vi) Assume any other relevant information (12 Marks)

QUESTION FOUR (20 Marks)

- (a) Define the term labor constant. (2 Marks)
- (b) Outline five factors to be considered before assessing the mark up in a tender. (5 Marks)
- (c) State eight factors affecting owning cost when pricing mechanical plant. (4 Marks)
- (d) Discuss the three critical elements when costing concreting works. (6 Marks)
- (e) Define plant matching. (3 Marks)

QUESTION FIVE (20 Marks)

- (a) Discuss types of payments certificates in a construction project. (3 Marks)
- (b) Briefly explain factors to consider when costing formworks. (6 Marks)
- (c) Build up rate for 225mm natural stone walling in cement sand mortar (1;3) per m^2
 - (i) Sand per ton – kshs 1200
 - (ii) Cement per 50kg bag ksh. 720
 - (iii) Skilled labor –kshs 600 per hour
 - (iv) Unskilled labor –kshs 300 per hour
 - (v) Natural stone per 7 tons' lorry ksh 9000
 - (vi) Density of sand $1600kg/m^3$
 - (vii) Bulk of sand 2%
 - (viii) Size of stone 300x225x225mm
 - (ix) Assume any other relevant information (11 Marks)