



## TECHNICAL UNIVERSITY OF MOMBASA

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### SCHOOL OF ENGINEERING AND TECHNOLOGY

Department of BUILDING & Civil engineering

### UNIVERSITY EXAMINATION FOR:

### BACHELOR OF TECHNOLOGY IN CIVIL ENGINEERING

### TCV 4413: ESTIMATING AND COSTING OF CONSTRUCTION WORKS

END OF SEMESTER EXAMINATION

**SERIES: JANUARY 2025**

**TIME: 2 HOURS**

#### **Instructions to Candidates**

You should have the following for this examination

-Answer Booklet, examination pass and student ID

-Calculator

This paper consists of **five** questions.

Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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#### **QUESTION ONE (COMPULSORY) 20 Marks**

- a) Explain the following terms as applied in estimating,
  - i) All in unit rate ,
  - ii) All in labour rate,
  - iii) All in materials rate.
- b) State the functions of an estimator in a construction project.
- c) Discuss the importance of approximate estimating, and using the superficial area, and the cubic unit method, determine the cost of Mbaraki halls annex (drawingno.EE/001/009). State the probable limitations of these technics.

#### **Question TWO, (20marks)**

- a) Outline the factors considered in pricing plant.
- b) Determine the unit rate for basement excavation (exceeding 3.0m and not exceeding 4.5m), using a mechanical face shovel( with shovel capacity 1.5m<sup>3</sup>), purchased at a price of sh. 36m, and having a resale value of sh.16m after 5years of use. assume any other necessary data not provided.

**Question THREE, (20marks)**

A proposed construction project, has a contract sum of sh2.8b and 30 months duration.

Build up the costs of the following preliminary items;

- a) Tower crane,
- b) Water for the site
- c) Site agent,
- d) Attendance for the senior staff on site.
- e) Cleaning the site.

**Question FOUR, (20marks)**

Build up unit rates and costs for the following construction items as extracted from a bill of quantities;

- i) 20mm thick Sand cement plaster (1:3) ---- 720m<sup>2</sup>
- ii) 20mm thick sand cement render (1:4)-----640m<sup>2</sup>
- iii) Knot prime and stop and apply 3coats of oil paint on general on general surface--internally-----720m<sup>2</sup>
- iv) 12mm dia, reinforcement bars to k.bs.--/bs---, including tying wire spacer blocks and bends -----180kg.

**Question FIVE, (20marks)**

- a) With the aid of hypothetical examples explain the following terms;
  - i) Cost analysis,
  - ii) Project final accounts
- b) State where the negotiated contract procurement process is most ideal, and with the aid of hypothetical examples, outline the three contractual methods adopted for fair consideration in the method.