



TECHNICAL UNIVERSITY OF MOMBASA

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

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

-Calculator

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) 20 Marks

- a) Outline the factors to consider when pricing plant.
- b) Determine the unit rate for manufacturing , vibrated reinforce concrete (1:2:4 – 20mm aggregates) in beams, using a N.T concrete mixer, 200litre capacity, purchased at a price of sh. 2.0m and having a resale value of sh.8m after four years of use. Use the following cost data, and assume any other information not provided;
 - i) 50kg bag of cement sh. 750,
 - ii) Fine aggregates sh. 2750/m³, and provide for sand bulking at 20%
 - iii) Coarse aggregates sh. 6000/m³.

Question TWO, (20marks)

- a) Outline the stages of tendering, commencing from preparation of contractual documents to award of tender. (6marks)
- b) Outline the following methods of tendering, stating the merits and limitations of each method;

- i) Open tenders
- ii) Selective tenders,
- iii) Design and build tenders. (14 marks)

Question THREE, (20marks)

Build up unit rates for the following construction items;

- i) 150mm thick solid concrete block wall,, laid in cement sand mortar (1:3)
- ii) Sawn softwood formwork to sides and soffits of beams,
- iii) 4mm thick clear sheet glass, in panes exceeding .1 and not exceeding .5m2.

Question FOUR, (20marks)

The building quantities rates have considerable discrepancies, and should be used with caution. Explain the following factors which could contribute to the variations of the rates;

- i) Deliberate distortion,
- ii) Contractors facilities,
- iii) The distribution of preliminaries and overheads and profits,
- iv) Standards,
- v) The Architect,
- vi) What the traffic can bear,
- vii) The site,
- viii) Errors.

Question FIVE, (20marks)

A proposed construction project, with sh. 1.8b contract sum, is scheduled to take 48months. Build up the costs for the following preliminary items;

- i) Water for the site,
- ii) General foreman,
- iii) Attendance to the chief engineer and clerk of works,
- iv) Site access, (200m murram road to be curved).
- v) Watchman.