



TECHNICAL UNIVERSITY OF MOMBASA

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

BACHELOR OF SCIENCE IN ENVIRONMENTAL HEALTH

**EBC4350: CONSTRUCTION ANDBUILDING TECHNOLOGY**  
SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: MARCH 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 question ONE (Compulsory) and any other TWO questions.

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

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**QUESTION ONE (COMPULSORY) 30 Marks**

- a) Outline the following properties of materials;
- i) Specific gravity,
  - ii) density,
  - iii) Thermal conductivity,
  - iv) Thermal transmittance
  - v) Modulus of elasticity,
  - vi) Compressive strength (10marks)
- b) Explain the effects of the following in deformation and movement of building materials;
- i) Crystallization of salts,
  - ii) Sunlight,
  - iii) Loss of volatility,
  - iv) Biological agencies. (10marks)

- c) Outline the tendering process from preparation of contractual document to award of tender and outline the following tendering methods;
  - i) Open tender, and
  - ii) selective tenders (10marks)

**Question TWO, (20marks)**

- a) Outline the functions of the following parties in construction;
  - i) Estimator
  - ii) Quantity surveyor.
  - iii) Architect (8marks)
- b) Explain the following in estimating;
  - i) Contract sum,
  - ii) Unit ate,
  - iii) All in labour rate,
  - iv) All in materials rate. (8marks)
- c) What are variation works and how are variations valued. (4marks)

**Question THREE, (20marks)**

- a) State the factors that influence the choice of foundations. (6marks)
- b) With the aid of suitable sketches outline the construction of the following types of foundations and state where they are ideally applied;
  - i) Wide strip foundations,
  - ii) Deep strip foundations
  - iii) Pad foundations (14marks)

**Question FOUR, (20 marks)**

- a) Outline the wet process of cement manufacture; (8marks)
- b) State the precautions necessary in performing the following concreting activities;
  - i) Pouring concrete,
  - ii) Transporting concrete,
  - iii) Compacting and vibrating concrete. (6marks)
- c) Explain the importance of regulating the water; cement ratio in concreting. (3marks)
- d) Explain the process of setting of cement. (3marks)

**Question FIVE, (20marks)**

- a) Outline the functional requirements of walls (8marks)
- b) Explain the importance of brick work bonding, and with the aid of appropriate sketches describe the following types of bonds;
  - i) Stretcher bond,

ii) Flemish bond. (12marks)