



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY

Department of BUILDING & Civil engineering

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN ENVIRONMENTAL HEALTH

EBC4350: CONSTRUCTION AND BUILDING 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.

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)