

073206T4BLD

BUILDING TECHNOLOGY LEVEL 6

CON/CU/BUT/CC/03/6

Apply Building Materials Science

November/December 2025



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in section A and **ANY THREE** (3) questions in section B.
3. Marks for each question are indicated in the brackets.
4. Candidates are provided with a separate answer booklet
5. Do not write on the question paper.

This paper consists of THREE (3) printed pages

Candidate should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. Engineering drawings help in preparing a bill of quantities for construction projects. Identify THREE pieces of information that a BOQ provides for materials. (3 Marks)
2. Construction projects rely on key materials for successful execution. Identify any SIX essential construction materials. (3 Marks)
3. Cementitious materials are used to bind together other constituents of concrete. Name any FOUR types of cementitious material used in construction. (4 Marks)
4. Metals have unique properties that can be described using specific terms. Define the following:
 - a. Malleability. (2 Marks)
 - b. Conductivity. (2 Marks)
 - c. Ductility. (2 Marks)
5. Selection of building stones depends on their suitability for construction use. Outline FOUR requirements of good building stones. (4 Marks)
6. Timber is prone to defects from various causes. Give FOUR defects caused by natural forces. (4 Marks)
7. Lime has some undesirable characteristics. Mention FOUR safety measures observed while handling lime. (4 Marks)
8. Building material possess diverse properties and characteristics. Give FOUR mechanical properties of building materials. (4 Marks)
9. Proper surface preparation ensures a long-lasting paint finish. Highlight any FOUR activities carried out on surfaces before applying paint. (4 Marks)
10. A good clay brick should meet specific quality standards. State FOUR ideal characteristics of a good clay brick. (4 Marks)

SECTION B (60 MARKS)

Answer any THREE questions in this section

11. Mkenya is constructing her dream house and seeks guidance on building stones before procurement.
- a. Describe to her any TWO physical classifications of stone and give TWO examples for each. (8 Marks)
 - b. Explain to her the procedure of conducting building stone crushing strength test. (12 Marks)
12. Heat treatment changes the internal structure of metals, while shaping changes their physical form.
- a. Discuss the following types of heat treatment processes of metal. (8 Marks)
 - i. Annealing
 - ii. Normalising
 - iii. Quenching
 - iv. Tempering
 - b. Explain any SIX methods that are used in shaping metals. (12 Marks)
13. Clay bricks have been used for a long time as a building material for walling and also foundation.
- a. Describe the manufacturing process of clay bricks. (11 Marks)
 - b. Explain the following types of glazing.
 - i. Salt glazing. (3 Marks)
 - ii. Lead glazing. (3 Marks)
 - iii. Opaque glazing. (3 Marks)
14. Cement dry manufacturing process is adopted when the raw materials are quite hard. The process is slow and the product is costly.
- a. Describe the dry manufacturing process of cement. (10 Marks)
 - b. Discuss any FIVE cement tests that may be carried out on-site or in the laboratory. (10 Marks)