

073206T4BLD

BUILDING TECHNICIAN LEVEL 6

CON/OS/BUT/CC/03/6

Apply Building Materials Science

July/August 2025



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

**WRITTEN ASSESSMENT**

**Time: 3 HOURS**

**INSTRUCTIONS TO CANDIDATE**

1. Marks for each question are indicated in the brackets.
2. The paper consists of **TWO** sections: **A** and **B**.
3. Candidates are provided with a separate answer booklet.
4. **DO NOT** write on this question paper.

**This paper consists of FOUR (4) printed pages.**

**Candidates 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. Building stones have been essential materials in construction for thousands of years. State any THREE types of sedimentary rocks. (3 Marks)
2. Roof covering is an essential element of a superstructure in a building. State any FOUR roof covering materials most commonly used. (4 Marks)
3. Construction materials are required to be subjected to test before, or during the construction. List FOUR test parameters that are identified during testing. (4 Marks)
4. Cementitious materials are used to bond other construction materials during construction. Name THREE types of cementitious materials. (3 Marks)
5. Glass is one of the essential construction materials used in the construction industry. Outline THREE uses of glass in construction. (3 Marks)
6. Obtaining and interpreting bills of quantities and working drawings is a fundamental step in any construction project. State THREE importance of interpreting BOQs and working drawings. (3 Marks)
7. Construction material selection is determined by construction requirements and project scope. Identify any FOUR reasons why material selection is dependent on requirements and scope. (4 Marks)
8. Plastics are broadly classified as either thermosets or thermoplastics. State FOUR properties of plastics. (4 Marks)
9. Clay product glazing treatments are methods used to apply and manipulate glaze on the surface of pottery. List THREE glazing treatments given to clay products. (3 Marks)
10. Heat treatment is the process of heating a metal or alloy to a specific temperature, holding it there for a period, and then cooling it at a controlled rate. Identify FOUR purposes of heat treatment. (4 Marks)
11. Timber conversion is a crucial stage between felling trees and using timber. Identify TWO purposes of timber conversion. (2 Marks)
12. To ascertain the required properties of stones, tests are undertaken to establish different properties. Outline any THREE types of building stone tests. (3 Marks)

**SECTION B (60 MARKS)**

*Answer THREE Questions in This Section*

13. Selecting quality construction materials is crucial for ensuring the longevity, safety and overall success of any building project.
- a. Describe TWO ways in which quality in each of the following materials can be achieved. (12 Marks)
    - i. Concrete
    - ii. Steel
    - iii. Wood
  - b. Explain FOUR activities undertaken upon the procurement of construction materials. (8 Marks)
14. Building stones are mostly cut, shaped and used in construction for structural or decorative purposes.
- a. Describe the geological formation of the following rocks. (4 Marks)
    - i. Igneous rocks
    - ii. Metamorphic rocks
  - b. Explain any THREE factors that lead to the deterioration of building stones. (6 Marks)
  - c. Describe the processes of quarrying stones by blasting method. (10 Marks)
15. Paint and varnishes are liquid or paste coating applied to surfaces of plaster, timber or steel for protection, decoration and durability.
- a. Describe any FIVE constituents of paint. (10 Marks)
  - b. Explain any FIVE uses of varnishes. (10 Marks)
16. You are a building technician tasked with supervising the construction of a commercial building with roof trusses made of timber.
- a. Explain any TWO methods you can use to season the roof truss timber. (4 Marks)
  - b. Describe any THREE types of timber conversion methods. (6 Marks)
  - c. Sketch a section of the cellular structure of a tree trunk showing growth rings of timber and label seven parts of the tree trunk. (10 Marks)