

073206T4BLD

BUILDING TECHNOLOGY LEVEL 6

CON/OS/BUT/CC/03/6/A

Apply Building Materials Science

March/April 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. Essential construction materials for a building project needs to be identified and procured before building works can commence. Identify FIVE essential construction materials for a building project. (5 Marks)
2. Bill of quantities for a project are estimated based on measurements provided in drawings. List FOUR components that are included for each bill item. (4 Marks)
3. Based on their physical properties building stones can be used for both substructure and superstructure walling. Outline any FIVE physical properties of building stones. (5 Marks)
4. Properties of construction materials are determined through various tests. Give any FOUR mechanical properties of construction materials. (4 Marks)
5. Heat treatment can enhance properties of steel. Define the following types of steel heat treatment;
 - a) Quenching; (2 Marks)
 - b) Annealing; (2 Marks)
6. Key ingredients need to be assembled during the manufacture of paints. Name THREE constituents of paints. (3 Marks)
7. Good bricks can be used for partitioning of walls. State FOUR qualities of a good brick. (4 Marks)
8. Quarrying of hard stones can be done through manual or mechanical methods. Outline the FIVE steps used during quarrying of stones by blasting. (5 Marks)
9. Cement is an essential construction material during construction works. Highlight any THREE uses of cement. (3 Marks)
10. Safety of workers and the public should be upheld during manufacturing and handling of construction materials. Mention any THREE safety measures observed during quarrying. (3 Marks)



SECTION B (60 MARKS)

Answer Any THREE Questions in This Section.

11. As a building technician, you have been tasked to select quality bricks to be used for construction of Jake's commercial project. Manufactured bricks are subjected to tests to ensure good quality bricks are produced.
- a) With aid of a diagram outline the systematic process of manufacturing bricks using a kiln. (14 Marks)
 - b) Glazing protects from chemical attack and other weathering agencies. Briefly describe the THREE different types of glazing in clay products. (6 Marks)
12. Strength of construction materials such as stones or concrete is determined through compressive and water absorption test. Discuss the process of carrying out the following tests on building stones;
- a) Compressive strength test. (10 Marks)
 - b) Water absorption test. (10 Marks)
13. Paint is used as a construction material to act as a protective layer and give a pleasing appearance to a building project. However, paint film may get deteriorated by various infiltrative materials actions such as corrosion, decaying and weathering.
- a) Explain any FIVE common defects that usually occur in painting works. (10 Marks)
 - b) Discuss the importance of safe handling and storage of paint on-site. (10 Marks)
14. Timber is a versatile and widely used material in the construction industry that combines strength, aesthetic value and sustainability when used appropriately.
- a) Explain any TWO artificial methods of timber seasoning. (4 Marks)
 - b) Describe any THREE timber defects. (6 Marks)
 - c) Unprotected wood can easily decay. Explain any FIVE methods of preserving timber. (10 Marks)

