073206T4BLD

BUILDING TECHNICIAN LEVEL 6

CON/OS/BUT/CR/06/6

Execute Superstructure Works

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 page.

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. Superstructure beams are structural elements that transfer loads from the floors to vertical supports. List any THREE types of beams used in the construction industry. (3 Marks)
2. The primary difference between reinforced concrete beams and prestressed concrete beams is based on the method used to introduce internal forces. Differentiate between a reinforced concrete beam and a prestressed concrete beam. (4 Marks)
3. Before physically setting out the column locations, documentation showing dimensions and positions of building should be reviewed. List any THREE of these information or documents. (3 Marks)
4. Attention should be given during the setting out and construction of superstructure columns to avoid unsafe structure. Identify any FOUR mistakes that may be encountered. (4 Marks)
5. Proper curing of concrete columns allows it to hydrate properly. Give any THREE curing methods. (3 Marks)
6. The materials used for erecting superstructure walls vary depending on the design requirements, load-bearing needs, aesthetic preferences, or cost. Mention any THREE materials used for erecting superstructure walls. (3 Marks)
7. Formwork is a temporary mould used to shape and support concrete curing process. Mention any TWO types of formworks used for constructing superstructure columns. (2 Marks)
8. Building superstructure wall courses are laid according to prescribed bonding methods. List any THREE bonding methods. (3 Marks)
9. The choice of roofing material significantly impacts a building's aesthetics, durability, maintenance requirements, energy efficiency, and cost. State any THREE roofing materials used in building. (3 Marks)
10. A fireplace is a structure designed to safely contain a fire for heating and allows the smoke to escape the building. Identify THREE fireplace elements. (3 Marks)
11. A slab system in construction is designed to support loads and transfer them to the building's vertical structural elements. List any THREE types of slab systems. (3 Marks)

12. Fittings in a building serve a specific functional or decorative purpose and distinct from the main structural elements of the building. Name THREE fittings that can be installed in a building. (3 Marks)
13. In a construction project fixtures are attached to the building structure to provide specific amenities. Give any THREE fixtures that are permanently attached to the structure. (3 Marks)

SECTION B (60 MARKS)

Attempt any THREE Questions in This Section

14. A client intending to construct a fireplace in his building and has contracted you to supervise the works.
    a. Describe SIX steps followed while building the firebox of a masonry fireplace, including considerations for firebricks and refractory mortar. (12 Marks)
    b. Explain TWO functions of a smoke chamber in a fireplace. (4 Marks)
    c. Discuss any TWO mistakes that can be made during fireplace construction. (4 Marks)
15. Slab systems are part of upper floor construction that are constructed in a storey building.
    a. Explain TWO functions of the of slab systems in upper floor construction. (4 Marks)
    b. Describe any THREE types of upper floor structures used in storey building. (6 Marks)
    c. Several types of superstructure walls in building construction serve different structural and functional purposes. Describe FIVE types of walls used in the superstructure construction. (10 Marks)
16. Jack's building project has reached the roofing stage, and he discovered that several roof designs are used in construction. As a building technician:
    a. Describe to him FOUR different types of roof designs. (8 Marks)
    b. Sketch a wooden roof truss and label and any three parts. (8 Marks)
    c. Describe any TWO purposes of a roof fascia. (4 Marks)
17. Stairs is an important component of a building providing access to different floors and roofs of the building.
    a. Explain any THREE important safety considerations during stair construction and installation. (6 Marks)
    b. Describe SEVEN steps followed while setting out a straight flight stair in a storey building. (14 Marks)