073205T4BLD

BUILDING TECHNOLOGY LEVEL 5

CON/OS/BUT/CR/02/5/A

Execute Building Substructure Works

March/April 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. Attempt **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

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)

Attempt ALL the questions in this section.

1. Soil is a complex material that is made of a variety of organic and inorganic matter. State THREE types of soils found in building construction. (3 Marks)
2. Formwork is used in concreting works to support wet concrete after placing. Outline FIVE functional requirements of foundation formwork. (5 Marks)
3. A common practice during the excavation of foundation trenches is the provision of planks. Highlight THREE situations where planking and strutting is required. (3 Marks)
4. Foundation walls are essential components of a building foundation system. List FOUR materials used in foundation walling. (4 Marks)
5. Excavation is of paramount importance in the preliminary stages of construction. State any FOUR excavating plants. (4 Marks)
6. During concreting of foundations, reinforcement bars are used together with concrete. Outline THREE reasons for using reinforcements in foundation. (3 Marks)
7. A foundation forms the base of a structure. State FOUR functional requirements of a foundation.
8. Construction of foundation walls is a critical stage in substructure works. Highlight FOUR reasons for curing the foundation walls. (4 Marks)
9. Concrete is a composite material comprised of several components. Highlight FOUR ingredients of concrete. (4 Marks)
10. When it comes to construction techniques, spacer blocks play a crucial role in various applications. Outline THREE uses of spacer blocks. (3 Marks)
11. Damp proof materials help to prevent moisture from seeping to the ground floor. State any THREE materials used for damp proofing in solid ground floors. (3 Marks)

SECTION B (60 MARKS)

Attempt Any THREE Questions in This Section.

12. As you engage in the activities of construction projects, understanding the role of dewatering in managing water levels becomes critical.
    a) Explain FIVE reasons why you would carry out dewatering. (10 Marks)
    b) Describe FIVE methods of dewatering used in excavations. (10 Marks)
13. Planking and strutting is an essential safety measure for many construction projects during the excavation stage.
    a) Explain FIVE reasons for planking and strutting. (10 Marks)
    b) Describe FIVE factors to consider when selecting the type of planking and strutting method to be used. (10 Marks)
14. You have been employed as a construction supervisor to oversee the construction of a three-storey building.
    a) Outline FOUR ways of controlling termites during construction of the ground floor. (4 Marks)
    b) Explain the purpose of each of the following on ground floors. (6 Marks)
        i. Hardcore
        ii. Blinding layer
        iii. Damp roofing
    c) With an aid of a sketch, prepare a sectional drawing of a solid ground floor to guide your foreman during construction. (10 Marks)
15. You have been awarded a project to construct a hospital in your local area financed by the constituency development fund.
    a) Elaborate SIX factors that would affect the type of foundations you would use in the project. (12 Marks)
    b) Describe FOUR types of foundations which you would consider for the project. (8 Marks)