

**073204T4MSN**

**MASONRY LEVEL 4**

**CON/OS/MA/CR/01/4/A**

**Construct Building Substructure**

**Nov/Dec 2024**



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

**WRITTEN ASSESSMENT**

**Time: 2 HOURS**

**INSTRUCTIONS TO CANDIDATE**

1. This paper consists of two sections; **A** and **B**
2. Answer **ALL** the question as guided in each section
3. Marks for each question are as indicated in the brackets
4. You are provided with a separate answer booklet to answer the questions
5. Do not write in this question paper

**This paper consists of FIVE (5) 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 (10 MARKS)**

*Answer all questions in this section. Each question carries one mark*

1. Architectural drawings show the general outline of a structure. Which is not a component of architectural drawings. (1 Mark)
  - A. Floor plan
  - B. Section
  - C. Elevation
  - D. Electrical plan
2. Architectural drawings show the size of different rooms of a building. Which units are commonly used to indicate the sizes of rooms. (1 Marks)
  - A. Inches
  - B. Millimetres
  - C. Feet
  - D. Centimetres
3. Foundations are constructed to transmit the weight of a building to the ground. Which materials is not suitable for constructing foundation walling. (1 Mark)
  - A. Natural quarry stones
  - B. Machine cut stones
  - C. High density concrete blocks
  - D. Engineering bricks
4. Ground water makes a building damp. What is the purpose of laying a damp proof membrane. (1 Mark)
  - A. To prevent moisture from rising up the walls.
  - B. To prevent moisture rising to the ground floor.
  - C. To prevent moisture rising to upper floors.

- D. To prevent moisture rising to the roof
5. Foundations are constructed using concrete. Which are the ingredients used to make concrete. (1 Mark)
- A. Cement, Sand, Ballast, Water
  - B. Cement, Red Oxide, Sand, Water
  - C. Lime, Cement, Sand, Water
  - D. Lime, Cement, Sand, Ballast
6. Ground floors develop cracks if not well constructed. Which material is used to prevent spread of cracks in ground floors. (1 Mark)
- A. Cement
  - B. Lime
  - C. BRC
  - D. Additives.
7. Ground floors are composed of different layers. Which layer from the list given will be the first from the bottom. (1 Mark)
- A. Mass concrete
  - B. Reinforced concrete
  - C. Hardcore
  - D. DPC
8. Blinding is carried out in the construction of ground floors. What is the purpose of blinding. (1 Mark)
- A. To fill in empty spaces and provide a level surface.
  - B. To prevent termite from climbing up the building.
  - C. To prevent water from penetrating the ground floor
  - D. To prevent reinforcing bars from bending

9. Backfilling is the replacing of the soil removed during construction of a foundation. What is the reason for backfilling. (1 Mark)

- A. To increase the overall stability performance of the building.
- B. To facilitate curing of the foundation.
- C. To dispose the spoil
- D. To prevent water from flooding in the trenches.

10. Setting out refers to outlining a structure on the ground. Under what circumstance is setting out not carried out. (1 Mark)

- A. Building a new house
- B. Renovating an existing building
- C. Extending an existing building
- D. Creating an opening in an existing wall.

**SECTION B (40 MARKS)**

***Answer ALL questions in this section.***

11. Setting out is the process of developing the physical positions of corners and walls of a building. Outline the procedure of setting out. (4 Marks)
12. Setting out can be carried out using various methods. Outline the procedure of carrying out 3:4:5 setting out. (4 Marks)
13. Various tools are used in setting and checking the right angles. Using a labelled sketch describe builder's square. (4 Marks)
14. Before setting out begins the site must be cleared. Give the purpose of removing top soil before setting out? (2 Marks)
15. Safety during foundation excavation should be observed. Give TWO safety requirements when carrying out excavation. (2 Marks)
16. Site services are very essential during construction. Give THREE services that should be provided on site before substructure works start. (3 Marks)
17. Trench excavations are carried out after setting out. Using well labelled diagrams outline TWO forms of trench excavations. (4 Marks)
18. Construction plant make it efficient to carry out various activities. List FOUR plant equipment used in substructure work. (4 Marks)
19. Foundations are described as either shallow or deep foundations. Differentiate between shallow and deep foundations. (2 Marks)
20. Concrete is described according to the materials used to manufacture it. Differentiate between mass concrete and reinforced concrete. (2 Marks)
21. Foundations are designed according to site conditions. Using a well labelled diagram outline a stepped foundation. (4 Marks)
22. Raft foundations are used where the bearing capacity of soil is low. Define raft foundation. (2 Marks)
23. Termite attack affects the strength of timber structures. Outline THREE precautions that can be taken to reduce the risk of termite attack in a building during ground floor construction. (3 Marks)

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