

073105T4PLM

PLUMBING LEVEL 5

CON/OS/PL/CR/03/5/A

Install Drainage Systems

March/April 2025



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

WRITTEN ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. The paper consists of **TWO** sections: **A** and **B**.
2. Answer **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 this 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)

Answer ALL the questions in this section.

1. Pipes are laid down and connected by use of various fittings in drainage installations.
List FOUR types of fittings that are used. (4 Marks)
2. Functionality test is carried out after drainage installations system. State FOUR reasons for carrying out the test. (4 Marks)
3. Safety and health practices are observed based on the OSHA act while installing drainage pipes. List FOUR safety requirements from the act. (4 Marks)
4. Measurements are transferred to the ground based on working drawings when setting out the drainage systems. State THREE reasons for the measurements transfer. (3 Marks)
5. Drainage tools and equipment are used and maintained based on the job practice.
State FOUR reasons for proper maintenance. (4 Marks)
6. Materials are estimated based on drawings and specifications on drainage systems.
List FOUR reasons for carrying out materials estimation. (4 Marks)
7. As a plumber, you require several working drawings while preparing site layout structure. State FOUR examples of working drawings on site. (4 Marks)
8. Pipe supports are mostly used in drainage works while laying system connections.
State FOUR reasons for providing pipe support. (4 Marks)
9. Drawing instruments are used to design the system of drainage site connection. State THREE types of the instruments. (3 Marks)
10. Drainage excavation is an important activity while carrying out plumbing works. List THREE reasons for carrying out excavation. (3 Marks)
11. Inspection chambers, manholes and traps are constructed according to specifications of the ground drainage system. State THREE reasons of having inspection chambers. (3 Marks)

SECTION B (60 MARKS)***Answer Any THREE Questions in This Section***

12. Faults in a drainage system refer to defects in the flow of wastewater in a plumbing system.

- i. Explain FIVE causes of leakages in a drainage system. (10 Marks)
- ii. List FIVE causes of water hammer in pipe drainage. (5 Marks)
- iii. State FIVE blockages that occur in a drainage system. (5 Marks)

13. Housekeeping in drainage refers to the management of construction site materials to minimize the discharge of pollutants into the environment.

- i. Explain FIVE reasons for maintaining good housekeeping practice. (10 Marks)
- ii. Describe FIVE tasks that are involved in cleaning the work area during drainage installation. (10 Marks)

14. Manholes are mostly masonry chambers provided at suitable intervals along the sewer line or drainage installation.

- i. With an aid of well labeled cross-sectional line diagram sketch a complete underground manhole showing the ground level matching the manhole cover.

- ii. Define the following manhole terms. (8 Marks)
(12 Marks)
 - a) Manhole cover.
 - b) Manhole benching
 - c) Inlet of manhole
 - d) Outlet of the manhole
 - e) Gradient fall of manhole
 - f) Manhole direction.

15. A drainage is a system that moves waste away from areas where they are not required. Describe TEN factors to consider when designing drainage. (20 Marks)

