

073105T4PLM

PLUMBING LEVEL 5

CON/OS/PL/CR/01/5/A

Install Water Supply 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 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. When doing pipe work installations as a plumber, you are required to use several working drawings. List THREE types of working drawings to be used. (3Marks)
2. Joints in pipe work are used in connections of two or more pipes together while doing installations in household connections. State TWO types of joints used in pipe connection. (2 Marks)
3. Personal Protective Equipment is essential for ensuring the safety and health of individuals working in various environments. List THREE personal protective equipment used in plumbing, giving the use of each. (3 Marks)
4. Tools and equipment are used in the workshop while working. State FOUR holding tools and equipment to be used. (4 Marks)
5. Water supply is done by several types of materials and represented by several abbreviations. State the meaning of the abbreviations listed below:
 - i. G.I (1Mark)
 - ii. P.V.C. (1Mark)
 - iii. PPR (1Mark)
6. Proper housekeeping on construction sites ensures safety and efficiency of working tools and the working environment. State FOUR ways of housekeeping. (4Marks)
7. Hydraulic machine bend is one of the plumbing equipment used for bending pipes in the workshop or construction site. State FOUR steps to follow when using the machine alongside a piece of G.I pipe with a hacksaw. (4 Marks)
8. Pipework faults can disrupt water flow and cause damage after installation in a residential building. List FOUR faults that might occur after water installation. (4Marks)
9. Fittings are plumbing elements that are used when connecting pipes on a line of installation. State the functions of the pipe fittings listed below:
 - i. Tee. (1Mark)
 - ii. Elbow bend. (1Mark)
 - iii. Union. (1Mark)
 - iv. Socket. (1Mark)
10. Valves are fittings used to control the flow of water or liquid while doing installation. State TWO types of valves. (2 Marks)

11. Pipes are the backbone of any plumbing system, carrying water, gas, and waste to and from buildings. Sketch the following pipe supports:
- i. Saddle clip. (2 Marks)
 - ii. Pipe hanger. (2 Marks)
12. Welding is joining two pieces of pipes together by either gas welding, arch welding, brazing or soldering. State THREE difference between brazing and soldering. (3 Marks)

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

13. Water distribution systems are identified and interpreted based on the drawings while doing water installations in the building.
- a) Explain FIVE building code regulations pertaining to the selection and installation of water pipes. (10 Marks)
 - b) Describe gravity water supply systems in water installation.
 - i. with or without pump. (5 Marks)
 - ii. Installation. (5 Marks)
14. Cold water supply is classified into two; direct supply and indirect supply.
- a) List FIVE differences between direct cold-water supply and indirect Cold-water supply. (5 Marks)
 - b) State THREE advantages and TWO disadvantages of each classification stated above (in No.14a) respectively. (5 Marks)
 - c) Explain FIVE reasons of using PPR pipes in water supply compared to G.I pipes on job market (10 Marks)
15. A plumbing vent system is an integral part designed to facilitate the flow of^e wastewater while preventing the buildup of pressure, siphoning of water from traps, and the release of foul odors into buildings. Sketch and explain a fully vented one-pipe system to a two-story building serving three appliances on each floor. (20 Marks)
16. Plumbing faults can refer to any issues in a plumbing system such as leaks, airlock, and water hammer corrosion after installation.
- a) Explain the causes of water hammer and solution for each. (10 Marks)
 - b) State FIVE ways on how leakages affect a plumbing system. (5 Marks)
 - c) Describe how an air lock occurs in pipes. (5 Marks)