073204T4PLM

PLUMBING LEVEL 4

CON/OS/PL/CR/ 0 4 / 4

Apply Scientific Principles

November/December 2025

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 in section **A** and **B**.
3. Marks for each question are as indicated in the brackets.
4. You are provided with answer booklet to answer the questions.
5. Do **NOT** write in 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 (10 MARKS)

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

1. Which of the follow f matter.
   A. Solid
   B. Gas
   C. Liqu
   D. Heat

2. The tendency of metals such as iron to rust when exposed and water is called:
   A. Erosion
   B. Corrosion
   C. Oxidation
   D. Condensation

3. _____ is not a mechanical property of material.
   A. ctility
   B. Hardness
   C. Toughness
   D. Depthless

4. Convert 287.5 centimetres to millimetres
   A. 287500
   B.
   C. 280
   D. 28750

5. Pascal's principle state s that:
   A. Liquids expand when heated
   B. Pressure applied to a confined fluid is transmitted equally in all directions
   C. rateincreases with temperature
   D. Water has maximum density at 0°C

6. The phenomenon where a liquid rises in a narrow tube due to adhesion and cohesion is called_____.

   A. Surface tension
   B. Capillary action
   C. Buoyancy
   D. Viscosity

7. _____ method of heat transfer occurs in hot water circulating in a storage tank.

   A. Conduction
   B. Convection
   C. Radiation
   D. Reflection

8. _____device is used to measure temperature in plumbing systems.

   A. Hydrometer
   B. Thermostat
   C. Thermometer
   D. Manometer

9. Which of the following laws explains water flow through a nozzle.

   A. Ohm’s law
   B. Bernoulli’s principle
   C. Boyle’s law
   D. Pascal’s law

10. The SI unit of electrical resistance is:

    A. Ampere (A)
    B. Ohm (Ω)
    C. Volt (V)
    D. Watt (W)

SECTION B (40 MARKS)

Answer ALL the questions in this section.

11. Define the following used in scientific principle. (3Marks)
    i Pressure
    ii Measurements
    iii Density

12. State FOUR properties of water. (4 marks)
13. Friction is the resistance that one surface or object when moving over another.
    State FOUR advantages of friction. (4Marks)

14. List FOUR methods of heat transfer. (4Marks)
15. State THREE ways of preventing corrosion in plumbing systems. (3Marks)
16. Give THREE reasons why plumbers should understand electricity. (3Marks)
17. A water tank is placed at a height of 10 m. Calculate the pressure at the tap level at the base of the tank (Take density of water = 1000 kg/m³, g = 9.81 m/s²). (4Marks)
18. Capacity for doing work. Name FOUR basic forms of energy based on the state of the matter (4Marks)

19. State FOUR safety precautions when handling electrical plumbing appliances. (4Marks)
20. State FOUR factors that influence the flow of water in pipes. (4Marks)

21. Calculate the density of a pipe that has a mass of 3 kg and a volume of 0.002 m³.
    (3Marks)