

073206T4CEN

CIVIL ENGINEERING LEVEL 6

CON/OS/CET/CC/07/6

Apply Water And Wastewater Technology

March/April 2026



**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** 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)

Answer ALL the questions in this section.

1. Planning a water supply system requires understanding of the quantity of water needed by a community. Outline FOUR categories of water demand considered during water supply planning. (4 Marks)
2. Water must be sourced from reliable and safe locations for supply systems. State FOUR sources of water used for water supply systems. (4 Marks)
3. Water abstraction is the process of removing water from its natural source for treatment and use. List FOUR methods used for abstraction of water from surface and ground sources. (4 Marks)
4. Pipes are critical in transporting water from treatment plants to consumers. Name FOUR types of pipes commonly used in water supply systems. (4 Marks)
5. Water distribution systems determine how water is delivered efficiently and safely to urban communities. Describe TWO types of water distribution systems used in urban water supply. (4 Marks)
6. Proper collection and disposal of wastewater is essential to protect public health and the environment. State FOUR reasons why wastewater must be collected and safely disposed of. (4 Marks)
7. Communities generate wastewater from different domestic, commercial and industrial activities. List FOUR sources of wastewater in a typical community. (4 Marks)
8. Different sewerage systems are designed based on population, topography and water demand. State FOUR types of sewerage systems used in wastewater management. (4 Marks)
9. Safety measures must be observed to prevent accidents and contamination during water and wastewater works. Explain TWO safety practices observed during water and wastewater works. (4 Marks)
10. Water storage structures are necessary to ensure continuous supply during periods of high demand or low supply. List FOUR types of water storage structures used in water supply systems. (4 Marks)

SECTION B (60 MARKS)

Answer THREE Questions in This Section

11. Water treatment ensures that communities have access to safe, clean and potable water for industrial use.
- a. Describe FIVE commonly used methods of disinfecting water in a conventional water treatment plant. (10 Marks)
 - b. Explain FIVE factors that influence the choice of water treatment processes. (10 Marks)
12. Sewerage systems safely collect and convey wastewater from homes, public facilities and industries, preventing pollution.
- a. Describe FIVE common problems encountered in sewerage collection systems. (10 Marks)
 - b. Explain FIVE sewer appurtenances used in wastewater collection systems. (10 Marks)
13. Wastewater treatment is essential to protect human health and the environment by improving effluent quality before disposal.
- a. Describe FOUR chemical characteristics of wastewater that determine treatment requirements. (8 Marks)
 - b. Explain SIX wastewater treatment processes used to improve effluent. (12 Marks)
14. Efficient irrigation and drainage practices are important for sustainable agriculture, ensuring crops receive adequate water while preventing waterlogging and soil degradation.
- a. Describe FIVE irrigation methods used in agricultural water management. (10 Marks)
 - b. Describe FIVE agricultural drainage methods. (10 Marks)

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