

073206T4CEN

CIVIL ENGINEERING LEVEL 6

CON/OS/CET/CC/05/6

Apply Workshop Technology Practices

November/December 2025



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

WRITTEN ASSESSMENT

TIME: 3 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

Candidate 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 questions in this section.

1. Workshops present many hazards that require strict safety measures. Outline FOUR safety requirements in a workshop environment. (4 Marks)
2. In a masonry workshop, various hand tools are required for cutting, shaping and finishing work. State FOUR masonry hand tools used in the workshop. (4 Marks)
3. In plumbing practice, various hand tools are utilized to ensure efficiency, accuracy and safety when working with pipes and fittings. Explain TWO common plumbing hand tools. (4 Marks)
4. Carpentry hand tools play an important role in timber work. List FOUR functions of carpentry hand tools. (4 Marks)
5. In electrical circuits, current flow is determined by the relationship between voltage, resistance and current. Calculate the current flowing through a circuit where a resistor of $20\ \Omega$ is connected across a 240 V supply. (2 Marks)
6. In carpentry and joinery, finishing is the final stage after the main construction and assembly of woodwork. Explain TWO types of finishes commonly applied to joinery work. (4 Marks)
7. In woodwork, finishing is an essential stage after construction of an item. Outline THREE purposes of finishing in woodwork. (3 Marks)
8. Power supply to engineering workshops is very critical in running workshop machines. List THREE sources of power supply in an engineering workshop. (3 Marks)
9. Arc welding is a metal joining process in which heat is generated by an electric arc struck between an electrode and the workpiece. Name FOUR common welding defects. (4 Marks)
10. Electricity is widely used in homes, schools and industries to power various appliances. With the aid of a labeled sketch, illustrate the basic components of a simple circuit. (4 Marks)
11. Electrical earthing is a very critical process in electrical installations. State FOUR importance of earthing. (4 Marks)

SECTION B (60 MARKS)

Answer THREE Questions in this section

12. As an expert in carpentry and joinery works, you are required to train apprentices on different types of wood joints.
- a. Explain FIVE importance of joints in carpentry and joinery. (10 Marks)
 - b. Describe FIVE types of joints used in carpentry and joinery. (10 Marks)
13. During workshop training, masonry apprentices are introduced to different types of bonds and jointing techniques which influence the strength and appearance of walls.
- a. Explain FIVE types of masonry units. (10 Marks)
 - b. Describe FIVE types of bonds used in masonry wall construction. (10 Marks)
14. A petrol engine can either have a two-stroke system or a four-stroke operation system.
- a. With the aid of a well-labeled sketch, explain the working of a four-stroke cycle petrol engine. (10 Marks)
 - b. Explain FIVE advantages of four-stroke engines over two-stroke engines in construction plant. (10 Marks)
15. Water pumps are widely used in homes, industries and construction sites for supplying and circulating water. As an expert in water supply and plumbing works.
- a. Explain the principle of operation of a centrifugal pump. (6 Marks)
 - b. Outline FIVE reasons centrifugal pumps are widely used in most applications. (5 Marks)
 - c. Describe FIVE maintenance practices required to ensure efficient operation of centrifugal pumps. (5 Marks)
 - d. State FOUR limitations of centrifugal pumps. (4 Marks)