

071505T4MTP

MECHANICAL PRODUCTION TECHNICIAN LEVEL 5

ENG/OS/ME/CR/01/5/A

FABRICATE SHEET METAL PARTS

March/April 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

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 questions in this section***

1. Testing of joints to determine its strength and functionality is recommended in a brazed joint of sheet metal product. Outline THREE non-destructive tests that you would apply in this scenario. (3 Marks)
2. Define the term 'lancing' as applied to sheet metal operations. (2 Marks)
3. Hemming is a non-thermal joining method in sheet metal works. Identify FOUR types of hems used in such works. (4 Marks)
4. On job completion in sheet metal fabrication, report writing is mandatory. Outline THREE reasons for this. (3 Marks)
5. A technician was exposed to several hazards while performing oxyacetylene welding operation in a sheet metal workshop. Outline FOUR hazards associated with this metal joining method. (4 Marks)
6. Sorting of tools in storage is a critical requirement in workshop management. List FOUR of its benefits. (4 Marks)
7. Edge treatment is a process that prepares the edges of sheet metal for further use in (4 Marks)
8. Marking out is the process of transferring a dimension onto a work piece using tools to create a pattern. Outline FOUR tools used for this process. (4 Marks)
9. Mechanical fasteners are used to join two or more parts in sheet metal work. Identify FOUR common types of these fasteners. (4 Marks)
10. You are performing a sheet metal operation in mechanical workshop, which you are required to observe safety measures. List FOUR measures you will be required to observe. (4 Marks)
11. List FOUR categories of personal protective equipment that a trainee should wear when working in a sheet metal workshop. (4 Marks)

SECTION B: (60 MARKS)***Answer ANY THREE questions in this section***

12.

- a. Soldering is one of the methods of making joints in sheet metal operation. Describe the procedure of achieving this in a sheet metal component. (10 Marks)
- b. In a sheet metal workshop, Stakes are commonly used to form different shapes. Describe FIVE types used for sheet metal work. (10 Marks)

13.

- a. A technician is performing gas welding on a work piece using leftward welding technique. With aid of a sketch, explain how this technique is conducted. (6 Marks)
- b. A wide range of engineering materials are applicable in the mechanical engineering world. Discuss THREE of these materials used in sheet metal work. (6 Marks)
- c. Different types of Notches are made to prevent overlapping and bulging of material during formation of seams and edges. With the aid of sketches, discuss FOUR types applicable in sheet metal work. (8 Marks)

14.

- a. Describe the following terms
 - i. nibbling;
 - ii. trimming.

(4 Marks)

- b. There are several types of joints used in sheet metal fabrication. Apart from a hem joint, explain FOUR other types. (8 Marks)
- c. Sheet metal fabrications are used in many industrial sectors due to their strength and versatility. Discuss FOUR areas where these fabrications can be used indicating a specific example. (8 Marks)

15.

- a. The flame profile is adjusted by changing the flow rate of oxygen and fuel gas in oxy-acetylene gas welding. Illustrate the THREE flames. (6 Marks)
- b. Explain THREE reasons for inspecting finished work. (6 Marks)
- c. Mechanical Technicians were creating a pattern layout for sheet metalwork. Describe FOUR factors they may consider in the process. (8 Marks)