

**MECHANICAL PRODUCTION TECHNICIAN LEVEL 6**

**ENG/OS/MEM/CR/06/6** Printed By: Technical And Vocational College

**Produce Parts by Surface Grinding**

**November/December 2025**

Printed By: Technical And Vocational College Date: 20.11.2025

03:13 PM



Printed By: Technical And Vocational College Date: 20.11.2025

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

Printed Technical And Vocational College Date: 20.11.2025 03:13

PM

**WRITTEN ASSESSMENT**

**Time: 3 HOURS**

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**INSTRUCTIONS TO CANDIDATE**

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1. The paper consists of **TWO** sections: **A** and **B**.

2. Answer **ALL** questions in Section A and Any **THREE** in B  
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3. Marks for each question are indicated in the brackets.

4. Candidates are provided with a separate answer booklet.

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5. **DO NOT** write on this question paper.

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**THIS PAPER CONSISTS OF FOUR (4) PRINTED PAGES**

**Candidates should check the question paper to ascertain that all pages are printed and  
that no questions are missing**

## SECTION A (40 MARKS)

***Answer ALL Questions in this Section***

1. While preparing to go <sup>Printed By: Technical And Vocational College</sup> mild steel plates, your supervisor asks you to explain <sup>Date: 20.11.2025 03:13 PM</sup> why observing Occupational Safety and Health Act (OSHA) 2007 regulations is essential before starting. State FOUR reasons you would give. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
2. You are assigned several worn out parts. Mention FOUR key parts of the grinding machine you would inspect before commencing work. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
3. During your shift, you notice that the grinding wheel is vibrating while in operation. <sup>Printed By: North Technical And Vocational College</sup> Mention FOUR possible causes of this defect. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
4. A group of new apprentices approaches you to learn about the role of coolant during surface grinding. Highlight FOUR functions of coolants that you would explain to them. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
5. You are given a technical drawing with ISO standards. List FOUR pieces of information you must extract from the drawing before grinding a workpiece. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
6. In the workshop, you are asked to mount a grinding wheel. State FOUR precautions <sup>Printed By: Technical And Vocational College</sup> you would take during this process. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
7. A supervisor inspects a finished component and requests you to verify surface finish. List FOUR methods you can use to perform this task. <sup>Printed By: Technical And Vocational College</sup> (4 Marks)
8. After completing a grinding task in the workshop, your supervisor <sup>Date: 20.11.2025 03:13 PM</sup> instructs you to carry out housekeeping. State FOUR practices you would perform in the workshop. <sup>Date: 20.11.2025 03:13 PM</sup> (4 Marks)
9. While grinding a machine component, you are tasked with checking its lubrication and alignment. Mention FOUR reasons why it is necessary for you to carry out these checks. <sup>Printed By: Technical And Vocational College</sup> (4 Marks)
10. In the inspection stage, you are required to check for dimensional accuracy of a machined shaft. State FOUR common instruments you would apply for this task. <sup>Printed By: Technical And Vocational College</sup> (4 Marks)

## SECTION B: (60 MARKS)

***Answer Any THREE Questions in this Section***

11. Printed By: Technical And Vocational College Date: 20.11.2025  
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a. In a fabrication company, you are tasked to grind a workpiece according to a specified tolerance. Describe FIVE essential steps you will use in developing an

Printed By: Technical And Vocational College Date: 20.11.2025 03:13 PM (10 marks)

b. As part of your duties, your supervisor has instructed you to prepare a report on the grinding operation you carried out. Print By: Technical And Vocational College Date: 20.11.2025 03:13 PM (10 marks)

- i. SIX key contents you would include in this report.
- ii. FOUR reasons why report writing is important in workplace documentation.

12.

a. You are working in a fabrication company where you have been assigned to grind a hardened steel plate to achieve a smooth finish within a  $\pm 0.01$  mm tolerance.

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Justify how you will determine the correct speed and feed rate settings on the  
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surface grinder. (10 marks)

b. During inspection, you notice that the grinding wheel has developed cracks and irregularities, leading to poor surface finish on parts. Describe the  
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procedures you would apply for;

- i. Dressing the grinding wheel.

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13.

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a. While carrying out a grinding operation on a hardened steel in the workshop, you are required to recommend a suitable grinding wheel. Describe FOUR  
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classifications of grinding that would guide your selection for this task. (12 Marks)

b. A grinding machine in your workplace shows signs of wear and reduced accuracy.

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Discuss the FOUR maintenance practices you would perform to restore and  
Date: 20.11.2025 03:13 PM (8 marks)

14.

a. You are a technician in a metal fabricating company and after producing a batch of ground components, the quality inspector rejects several parts for being out of tolerance; (10 Marks)

- i. List FOUR inspection procedures you would use to ensure compliance with dimensional accuracy and surface finish.
- ii. Name s you would use for th is activity.

b. You are assi gned to inspect ground parts for compliance with drawings. Explain how you would measure the following using appropriate tools;

- i. dimensional accuracy (4 Marks)
- ii. tolerances (3 Marks)
- iii. surface finish (3 Marks)