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MECHANICAL PRODUCTION TECHNICIAN LEVEL 6**ENG/OS/MEM/CR/06/6****Produce Parts by Surface Grinding****November/December 2025**

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

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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

3. Marks for each question are indicated in the brackets.

4. Candidates are provided with a separate answer booklet.

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 gof mild steel plates, your supervisor asks you to explain why observing Occupational Safety and Health Act (OSHA) 2007 regulations is essential before starting. State FOUR reasons you would give. (4 Marks)
2. You are ass several wom out parts. Mention FOUR key parts of the grinding machine you would inspect before commencing work. (4 Marks)
3. During your shift, you notice that the grinding wheel vibrating while in operation. Mention FOUR possible causes of this defect. (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. (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. (4 Marks)
6. In kshop, you are asked to mount a grinding wheel. State FOUR precautions you would take during this process. (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. (4 Marks)
8. After completing a grinding task in the workshop, your team leader instructs you to carry out housekeeping. State FOUR practices you would perform in the workshop. (4 Marks)
9. While a grinding machine you are tasked with checking its lubrication and alignment. Mention FOUR reasons why it is necessary for you to carry out these checks. (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. (4 Marks)

SECTION B: (60 MARKS)***Answer Any THREE Questions in this Section***

11.

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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 operation for this job. (10 marks)

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- b. As part of your duties, your supervisor has instructed you to prepare a report on the grinding operation you carried out. Discuss (10 marks)
- SIX key contents you would include in this report.
 - FOUR reasons why report writing is important in workplace documentation.

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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 ± 0.01 mm tolerance.

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Justify how you will determine the correct speed and feed rate settings on the 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 procedures you would apply for; (10 marks)

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- Dressing the gridding wheel.

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of grinding wheel.

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 classifications of grinding that would guide your selection for this task. (12 Marks)

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

Discuss the FOUR maintenance practices you would perform to restore and

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sustain a grinding machine performance. (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 this activity.
- b. You are assigned 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)