

Technical And Vocational College

Date: 29.07.2025 10:32 AM

071305T4EOP**ELECTRICAL OPERATION (POWER OPTION) LEVEL 5****ENG/OS/PO/CR/ 03 / 5****Install Electrical Machines****July/August 2025**

Technical And Vocational College Date: 29.07.2025 10:32 AM



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

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Time: 3 HOURS

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AM

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. **Attempts 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.

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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)

Attempt ALL questions in this section.

1. Motors are classified in ~~motors~~. List THREE types of DC motors.
Printed By: Technical And Vocational College
Date: 29.07.2025 10:32 AM (3 Marks)
2. Layouts are very essential during electrical machine installations. State THREE objectives of machine layout. (3 Marks)
3. Cable laying is a process of fixing cables to a position where they serve their purpose. List FIVE factors to consider in machine cable laying. (5 Marks)
4. PPEs are used to provide safety during machine installation. Name FOUR personal protective equipment items used while carrying out machine installation. (4Marks)
5. Machines are mounted for their stability and alignment. List FOUR steps in the motor mounting procedure. (4 Marks)
6. The control panel is designed to hold the electrical components. State FIVE factors considered in the design of machine control panels. (5 Marks)
7. Tools are classified according to installation work. Name FOUR tools used in cable laying. (4 Marks)
8. Cables are used to transfer power from one point to another. Name TWO types of cables used in motor control. (2 Marks)
9. Motors should always be installed in accordance with ~~IEC~~. State TWO IEE requirements regarding electric motors. (2 Marks)
10. Cable segregation is a practice done to cables before any installation. State THREE factors on cable segregation. (3 Marks)
11. Motors can run in forward and reverse directions. How of direction of rotation of a three-phase motor is achieved. (5 Marks)

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SECTION B: (60 MARKS)*Attempt any **THREE** questions in this section.*

12.

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a) Machine layout is used as a guide during machine installation. Describe

the FOUR types of machine layout.

(8 Marks)

b) Before designing a machine layout, various considerations are adhered to. Discuss SIX

factors to consider in the design of machine layout.

(12 Marks)

13.

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a) Safety is a set of regulations to be followed before carrying out motor installation.

Explain FOUR safety precautions to be observed before installing an electric motor.

(8 Marks)

b) Mounting of motors follows certain procedures and requirements for efficient functioning. Explain how each of the following should satisfy the requirements of the

installation and mounting of motors

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i) Foundation;

(2 Marks)

ii) Alignment;

(2 Marks)

c) Machines are mounted as per the IEEE regulations. Discuss FIVE factors considered in the mounting of electrical machines.

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(8 Marks)

14.

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a) Control panel is mounted as per the load and function. Explain FIVE

advantages of using machine control panels.

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(10 Marks)

b) Components are electrical devices used for the control of machines. State FIVE components of an industrial control panel.

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(5 Marks)

c) Control panel houses electrical devices which are used for control. Outline FIVE features of a good control panel.

(5 Marks)

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15.

a)

i. Machine cabled before laying out. Define segregation in cable laying. (2 Marks)

ii. Cables are segregated as per the standard operating procedure. Explain FOUR benefits of segregation in cable laying. (4 Marks)

b) The cable size selection is based upon several factors. Discuss THREE factors to be considered during cable selection. (6 Marks)

c) Illustrate the control circuit for the direction of a three-phase induction motor (8 Marks)