070305T4ELC

ELECTRONICS CRAFTSPERSON LEVEL 5

ENG/OS/ET/CR/03/5/A

Install Electrical Machine Control Systems

Nov/Dec 2024

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

PRACTICAL ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE:

1. You are required to perform the following task

   TASK: Install a three-phase induction motor to achieve a Star - delta starter.

2. You have been provided with the following resources for the practical tasks:

- *Three phase induction motor*
- *Three phase isolator*
- *Three phase D.B.*
- *415V electromagnetic contactor*
- *415 V overload relays*
- *Start -stop button*
- *Indicator lamp (red, yellow and green)*
- *Lamp holders*
- *1.5mm^2 PVC single core cable R/B*
- *2.5mm^2 PVC single core cable R/B/G*
- *Wooden screws (assorted)*
- *20mm flexible PVC conduit*

- *20 mm PVC switch box*
- *20 mm PVC circular box*
- *Pliers*
- *Testers*
- *Screw drivers-flat/star*

TASK: Figure 1 is a layout diagram of a three-phase induction motor installed to achieve a Star - delta starter.

The indicator lamps operate as follows:

a. Lamp L1 (Green) lights when the motor is OFF
b. Lamp L2 (Red) lights when the motor is ON
c. Lamp L3 (Yellow) lights when there is overload

i) Draw the wiring diagram of power circuit and control circuit for the star-delta installation.
ii) Install the motor in accordance with the wiring regulations and codes of practice
iii) Carry out the following tests;
   i. Short circuit and Open circuit.
   ii. Compile a test report.

(Note: Do not power the installation)

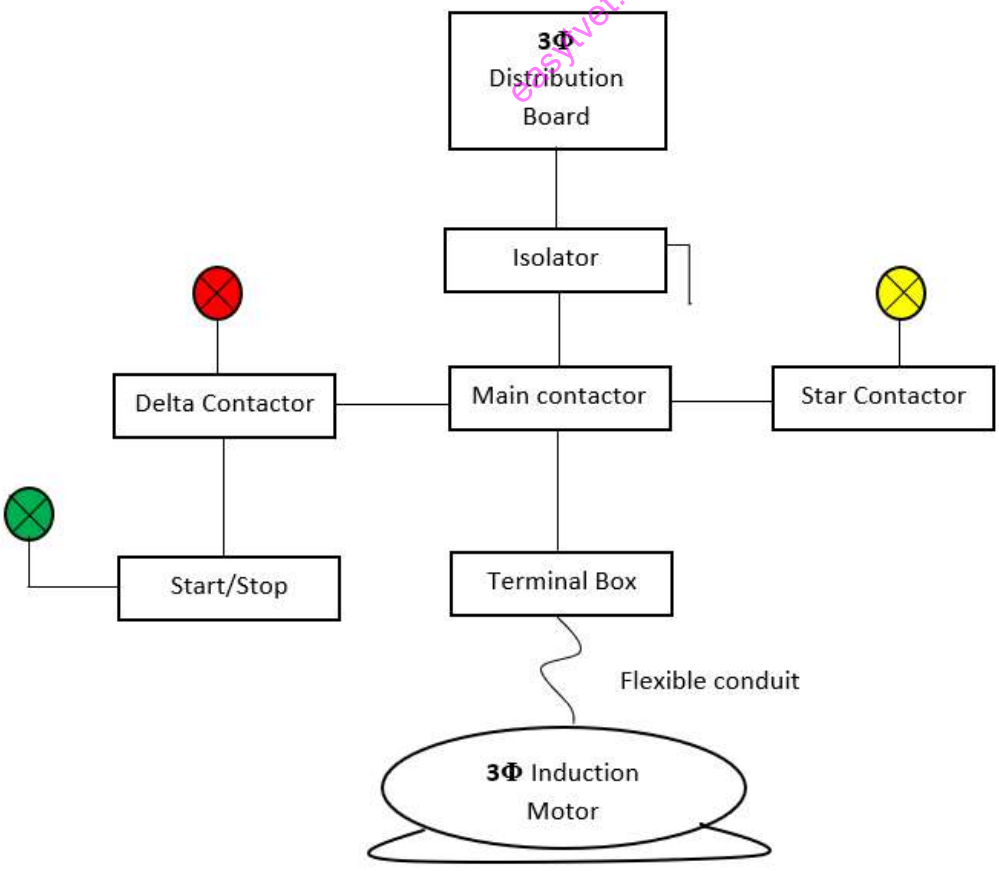

Figure 1