



**NATIONAL EXAMINATION
AND SCHOOL INSPECTION
AUTHORITY**

Tuesday, 20/7/2021

08:30 – 11:30 AM

Names

Index number

TVET NATIONAL EXAMINATION, RTOF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

OPTION/TRADE: **INDUSTRIAL ELECTRICITY**

SUBJECT: Electrical Drawing

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) & (ii)

FOR EXAMINER'S USE ONLY

[illegible]



TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

INSTRUCTIONS TO CANDIDATES: PART I (Answer Booklet)

1. A candidate should fill in the actual names and the index number on the cover of this questions and answer booklet on the provided place (Black Box).
2. It is illegal for a candidate to write any of his/her names, index number or a school name inside the answer booklet.
3. A candidate should check if all pages of the answer booklet are complete. No candidate should remove or tear any pages or part of it from the answer booklet.
4. A candidate should answer in the language in which the examination is set. (See page **(ii)**)
5. A candidate should sign on the sitting plan when submitting the answer booklet. He/she has also to check if the answer booklet is well sealed.
6. No extra paper is allowed in the examinations room. If a candidate is caught with it his/her results will be nullified.
7. No candidate is allowed to write answers not related to the subject being sat for, otherwise it will be considered as a cheating case.
8. Write your answers on the 12 lined pages (From page 1 of 12 to page 12 of 12).
9. Use the last non-lined pages as draft.
10. Results for any candidate who is caught in examination malpractices are nullified. The cheating can be recognized during examinations administration, marking exercise or even thereafter.

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

OPTION/TRADE: INDUSTRIAL ELECTRICITY

SUBJECT: Electrical Drawing

DURATION: 3 hours

INSTRUCTIONS TO CANDIDATES: PART II (Question paper)

The paper is composed of two (2) main Sections as follows:

Section I: Attempt all the Twelve (12) questions (60 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

Allowed materials:

- Ruler and square
- Calculator

Note:

Every candidate is required to carefully comply with the provided assessment instructions.

Section I: Attempt all the Twelve (12) questions

(60 marks)

1. Define the term “Electrical Drawing”. **(5 marks)**

2. Describe the following terminologies:
 - a) Point
 - b) A line
 - c) Planes
 - d) A section
 - e) Projection. **(5 marks)**

3. State any five (5) important information provided by the Title block of drawing sheet. **(5 marks)**

4. State any five (5) tools and materials or equipment used in drawing. **(5 marks)**

5. Identify the following devices by giving out their symbols:
 - a) Diode
 - b) Capacitor
 - c) Inductor
 - d) Dc voltage source
 - e) AC voltage source. **(5 marks)**

6. Differentiate automatic from manual commands in electrical system. **(5 marks)**

7. Explain the different methods used to start an asynchronous (induction) motor. **(5 marks)**

8. Complete the table below about paper format:

(5 marks)

FORMAT	SIZE
A0	
A1	
A2	
A3	
A4	

9. Enumerate any five (5) command devices that are mostly used in industrial electricity.

(5 marks)

10. Draw the circuit diagram of a three phase induction motor operating in two directions using a cam switch.

(5 marks)

11. Draw a line diagram of two contactors M1 and M2 operated each from its own station so that M2 can not be energized if M1 is not energized.

(5 marks)

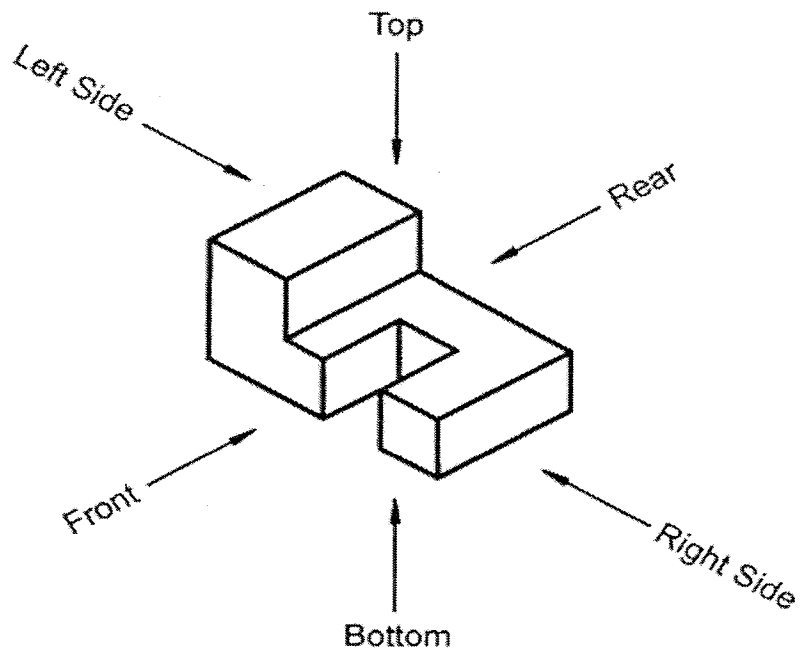
12. Identify the five (5) types of electrical diagram.

(5 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

- 13.** Differentiate Ring from Radial connection of socket outlets by using wiring diagrams. **(10 marks)**
- 14.** List down and explain the two (2) types of drawing. **(10 marks)**
- 15.** On the ceiling a hexagonal area is reserved for a big lamp containing a support with a hexagonal base. Before the lamp is fixed you should draw a hexagonal regular polygon. Follow the given steps to draw that hexagon.
- a) Draw a circle with AD equals to 60mm as diameter.
 - b) Divide the diameter AD into equal six (6) parts.
 - c) With AD as radius and A&B as centers, draw arcs intersecting each other at G
 - d) Join G-2 and extend to intersect the circle at B
 - e) A-B is one side of the hexagon. **(10 marks)**
- 16.** Draw a wiring diagram for lighting one (1) Lamp controlled in three (3) positions. **(10 marks)**

17. Draw the bottom view, right view, top view, front view, left view, rear view in **first angle projection** for the following Sketch: **(10 marks)**



18. Draw the Power Circuit for wound rotor/slip-rings motor started in three (3) steps. **(10 marks)**

