

**6445**  
**BOARD DIPLOMA EXAMINATION**  
**MARCH/APRIL - 2019**  
**DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING**  
**ELECTRICAL ENGINEERING DRAWING**  
**FOURTH SEMESTER EXAMINATION**

**Time: 3 Hours**

**Total Marks: 60**

**PART - A      (5m x 4 = 20m)**

*Instructions: 1) Answer all questions*

*2) Each question carries 5 marks*

1. Draw the sectional end view and elevation of protected flange coupling assuming the shaft diameter 25 mm
2. Draw the face plate of a four point starter.
3. Draw a neat sketch of SF<sub>6</sub> Circuit Breaker and label the parts (not to scale)
4. Draw the 132 kV steel tower for double circuit with all clearances

**PART - B      (20m x 2 = 40m)**

*Instructions: 1) Answer any two questions*

*2) Each question carries 20 marks*

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5. a) Develop a lap winding for the stator a 3-φ AC motor (induction type) having 24 slots with one conductor per slot and 4 poles full-pitch
  - b) Draw the neat schematic diagram of a transformer yard earthing system and label the important parts
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6. (a) Draw the sectional plan (sectional top view) of a 1-phase, 230/690-V, 15-kVA transformer with the following data:

Cross-section of the core: Cruciform type

Diameter of the core: 60 mm

Distance between core centres: 190 mm

Outer diameter of 1st layer of LT winding: 90 mm

Inner diameter of 1st layer of LT winding: 65 mm

Thickness of 2nd layer of LT winding: 12.5 mm

Inner diameter of HT winding: 125 mm

Outer diameter of HT winding: 175 mm

[Take suitable scale and assume any missing data]

- b. Draw the following core sections of a core-type transformer assuming circumference circle diameter 50 mm:

(i) Square type

(ii) Three stepped type

7. Draw the following views of a 3- $\phi$ , 440 V, 50 Hz squirrel cage induction motor

(a) Half-sectional front elevation

(b) Half-sectional end view

The dimensions are as follows:

Outside diameter of stator stampings = 230

Inside diameter of stator stampings = 164

Stator core length = 120

Thickness of stator frame = 25

**Stator Slots:**

Type = open type

Number = 36

Size = 15 x 8

Air gap = 2

Outside diameter of rotor stampings = 160

Inside diameter of rotor stampings = 35

**Shaft diameter:**

At center = 35

At bearing = 30

Total distance of foot rest = 220

All dimensions are in mm. Assume missing data if any

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