

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2020**

**ELECTRICAL ENGINEERING DRAWING**

[Maximum Marks: 75]

[Time: 2.15 Hours]

**PART-A**

(Answer *any three* questions in one or two sentences. Each question carries 2 marks)

- I.
1. Draw the symbol of an intermediate switch.
  2. Draw the sketch of multi polar armature stamping in DC machines.
  3. Draw the sketch of one stator lamination piece in a squirrel cage induction machine.
  4. Draw the symbol of DC Compound machine.
  5. Sketch any two shapes of the core lamination of a transformer. (3 x 2 = 6)

**PART-B**

(Answer any *four* of the following questions. Each question carries 6 marks)

- II
1. Draw the single line diagram of 66 KV sub station.
  2. Sketch the sectional end view of a salient four (4) pole rotor in an alternator field system.
  3. Draw the sectional end elevation of one field pole of a dc machine.
  4. Sketch the half sectional end view of a squirrel cage induction motor stator from the shaft side.
  5. Sketch the elevation of slip rings mounted on the shaft of a three phase slip ring IM.
  6. Draw plan and elevation of one limb, two stepped, core type transformer having  $d = 30$  cm.
  7. Draw the sectional view of cross over type winding in a transformer. (4 x 6 = 24)

**PART-C**

(Answer *two* full question from part C. *One* full question from Unit I or Unit II and *second* full question from Unit III or Unit IV. Each full question carries 22½ marks)

**UNIT – I**

- III Draw Plate earthing with all standard dimensions (22½)

**OR**

## UNIT – II

- IV Draw to a suitable scale half sectional end elevation looking from the shaft end of a 75 kW, DC motor with main dimensions as given below.

No. of poles = 4

External dia. of armature stampings = 41.5 cm

Inside dia. of armature stampings = 21 cm

No. of slots 36.

Size of the slot = 3.5 cm x 1.2 cm

### Main pole dimensions

Height = 16 cm

Width = 12 cm

Pole arc/pole pitch = 65%

Interpole = 4.4 cm x 15 cm

Air gap at main pole = 0.5 cm

Thickness of yoke = 0.8 cm

Shaft dia = 8 cm (All other necessary data may be assumed as per general standards)

(22½)

## UNIT- III

- V Draw the half sectional elevation of a 10 kW, Squirrel cage induction motor with following dimensions.

Length of the stator = 13.5 cm

Inside dia of stator = 18 cm

Radial cooling duct in stator and rotor = 1 cm wide

Stator slot size = 1 cm wide x 3 cm depth

Out side dia of stator = 32 cm

Air gap = 0.2 cm

Rotor slot depth = 1 cm

Shaft dia = 2.4 cm

Total length frame length = 30 cm

Stator frame length = 18.8 cm

Foot step = 1 cm depth x 8 cm wide

Frame thickness = 1.2 cm. Shaft projected from cover and supported with ball bearings. Length of shaft projection and all other necessary datas may be assumed as per general standards.

(22½)

**OR**

**UNIT - IV**

VI Draw the sectional plan and elevation of a 500 kVA, 11000/400 V, Single phase core type transformer as per the following dimensions.

Cruciform core construction, 0.35 mm thick steel lamination

Diameter of circum circle = 33 cm

Core laminations are fixed by two 3 mm thick end plates

Centre to centre distance between cores = 49 cm

Height of core = 43 cm

Yoke height = 25 cm

Yoke length =  $49 + (0.85 \times 33) = 77$  cm

Total height = 99 cm

Outside dia of LT coil = 38 cm

Inside dia of LT coil = 33 cm

LT Winding height = 36.2 cm

HT Winding height = 38 cm

Outside dia of HT coil = 46.8 cm

Inside dia of HT coil = 41.5 cm

All other necessary data may be assumed as per general standards

(22½)