

**6445**  
**BOARD DIPLOMA EXAMINATION**  
 \* **JUNE - 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 elevation of HRC fuse.
2. Draw the assembled view of a D.C. Machine with Yoke, filed poles and interpoles with following main dimensions  
 Diameter of shaft=20mm  
 Diameter of armature core=120mm
3. Draw the neat sketch of minimum oil circuit breaker and label the parts (not to scale)
4. Draw the 132 kV steel tower for double circuit with all clearnces.

**PART - B ( 20m x 2 = 40m)**

*Instructions: 1) Answer any two questions  
 2) Each question carries 10 marks*

5. a) Draw the simple lap winding diagram (progressive winding) and ring diagram for a 4-pole DC machine having the following data  
 Number of slots: 32  
 Number of conductors/slot: 1 (one conductor in each slot)  
 Number of commutator segments: 16  
 Also show the brush positions
- b) Draw the neat sketch of GI plate earthing with proper dimensions as per Indian standard and label the parts. [Assume suitable scale]

\*

\*

6. Draw the sectional plan and elevation of single-phase, single-stepped, core-type transformer with the following dimensions:

Core circle diameter : 65 mm  
 Spacing between core centers: 185 mm  
 LT winding inner diameter : 70 mm  
 Height of the LT winding : 200 mm  
 LT winding outer diameter : 120 mm  
 HT winding inner diameter : 125 mm  
 HT winding outer diameter : 170 mm  
 Height of the HT winding : 200 mm  
 Over all height yoke and core : 360 mm  
 Height of Yoke : 60 mm  
 Height of Bakelite ring : 20 mm

Assume any missing data in proportionate with above dimensions

7. (a) Draw a neat sketch of a Autotransformer starter used for a three-phase induction motor
- (b) Draw the half-sectional end view of a 5 HP slip-ring induction motor with the following dimensions
- (i) Outside diameter of stator stampings = 240 mm
  - (ii) Inside diameter of stator stampings = 160 mm
  - (iii) No. of stator slots = 36
  - (iv) Type of stator slot = Open
  - (v) Size of stator slot = 18 mm x 12 mm
  - (vi) Thickness of stator frame = 25 mm
  - (vii) Width of air gap = 2 mm
  - (viii) Outside diameter of rotor stampings: 156 mm
  - (ix) Inside diameter of rotor stampings = 35 mm
  - (x) No. of rotor slots = 30
  - (xi) Type of rotor slot: Open
  - (xii) Size of rotor slot: 10 mm x 6 mm
  - (xiii) Inner dia. of lifting eye bolt: 30 mm
  - (xiv) Outer dia. of lifting eye bolt: 40 mm
  - (xv) Shaft diameter at center: 35 mm