



C16-EE-406

6445

BOARD DIPLOMA EXAMINATION, (C-16)  
JANUARY/FEBRUARY—2022  
DEEE - FOURTH SEMESTER EXAMINATION  
ELECTRICAL ENGINEERING DRAWING

Time : 3 hours ]

[ Total Marks : 60

**PART—A**

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **five** marks and all dimensions are in mm.
1. Draw a neat sketch of High Rupturing Capacity (HRC) fuse and label its parts.
  2. Draw a neat sketch of 4-point starter for DC shunt motor and label the parts.
  3. Draw a neat sketch of minimum oil circuit breaker and label the parts (not to scale).
  4. Draw a sketch of 132 kV steel tower for double circuit and mark the dimensions.

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## PART—B

- Instructions :** (1) Answer *any two* questions.  
(2) Each question carries **twenty** marks and all dimensions are in mm.

5. (a) Develop a simple lap winding for DC machine having 6 poles, 36 armature slots and one conductor per slot. 10
- (b) Draw the neat sketch of GI pipe earthing with proper dimensions as per Indian standard and label the parts. (Assume suitable scale) 10
6. Draw the sectional elevation and plan of single-phase 230/110 V, 5 kVA transformer with the following data : 20
- |        |                                   |   |                     |
|--------|-----------------------------------|---|---------------------|
| (i)    | Cross-section of the core         | : | Single stepped core |
| (ii)   | Diameter of the circle            | : | 75 mm               |
| (iii)  | Distance between the core centres | : | 150 mm              |
| (iv)   | Height of yoke                    | : | 80 mm               |
| (v)    | Outside diameter of LT coil       | : | 90 mm               |
| (vi)   | Inside diameter of LT coil        | : | 80 mm               |
| (vii)  | Height of LT winding              | : | 230 mm              |
| (viii) | Number of turns per limb          | : | 50                  |
| (ix)   | Outside diameter of HT coil       | : | 135 mm              |
| (x)    | Inside diameter of HT coil        | : | 110 mm              |
| (xi)   | Height of HT winding              | : | 230 mm              |
| (xii)  | Number of turns per limb          | : | 100                 |
| (xiii) | Overall height of yoke and core   | : | 400 mm              |

Assume any other missing data and draw to a suitable scale.

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7. (a) Draw a neat sketch of an autotransformer starter of a three-phase induction motor. 8

(b) Draw the half-sectional end view of a 5 HP squirrel-cage induction motor with the following dimensions : 12

- (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 × 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 × 5 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

Assume missing dimensions and draw to a suitable scale.

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