



C14-EE-407

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BOARD DIPLOMA EXAMINATION, (C-14)  
MARCH/APRIL—2016  
DEEE—FOURTH SEMESTER EXAMINATION  
ELECTRICAL ENGINEERING DRAWING

Time : 3 hours ]

[ Total Marks : 60

**PART—A**

5×4=20

**Instructions** : (1) Answer **all** questions.

(2) Each question carries **five** marks.

1. Draw the cartridge fuse (not to scale) and label the parts.
2. Draw neatly the wiring diagram of star/delta starter used for 3-phase induction motor (not to scale).
3. Draw the neat sketch of valve-type lightning arrester and label the parts (not to scale).
4. Draw the neat sketch of 220-kV steel tower for double circuit with standard dimensions.

**PART—B**

20×2=40

**Instructions** : (1) Answer *any two* questions.

(2) Each question carries **twenty** marks.

(3) The scale should be mentioned for dimensional drawings.

5. (a) Draw the simple lap winding diagram (progressive winding) and ring diagram for a 2-pole DC machine having the following data :

Number of slots : 28

Number of conductors/slot : 1 (one conductor  
in each slot)

Number of commutator segments : 14

Also show the brush positions.

10

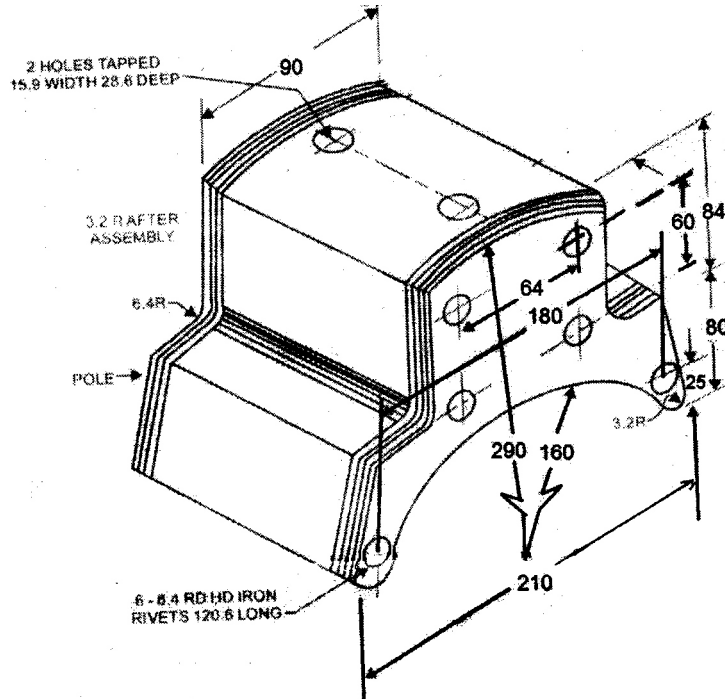
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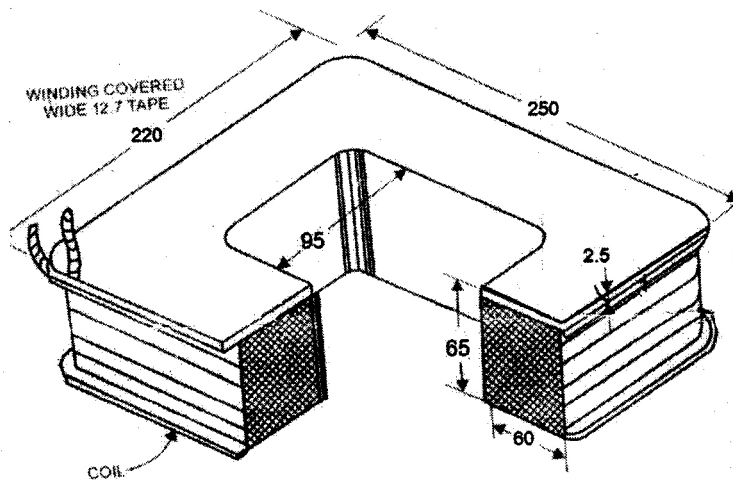
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(b) The isometric views of the field pole coil and field pole of a DC machine is shown in the following two figures :



FIELD POLE



FIELD POLE COIL

Draw the assembled sectional view (only sectional elevation) by taking suitable scale.

10

6. (a) Draw neatly <sup>\*</sup> 350-kVA, 11 kV/440 V distribution transformer mounted on plinth with two poles of each having pole length 10 m each and the spacing between the two poles is 2.44 m. [Assume any other missing data and take suitable scale] 10
- (b) Draw the neat sketch of GI plate earthing with proper dimensions as per Indian standard and label the parts. [Assume suitable scale] 10
7. (a) Draw the sectional plan (sectional top view) of a 1-phase, 230/690-V, 15-kVA transformer with the following data : 10
- |   |                  |
|---|------------------|
| Cross-section of the core                           | : Cruciform type |
| Diameter of the circumference<br>circle of the core | : 60 mm          |
| Distance between core centres                       | : 190 mm         |
| Outer diameter of 1st layer<br>of LT winding        | : 90 mm          |
| Inner diameter of 1st layer<br>of LT winding        | : 65 mm          |
| Thickness of 2nd layer<br>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 half-sectional end view of a 7.5-HP, 440-V, 50-Hz, 3-phase squirrel-cage induction motor with the following main dimensions : 10
- |  |               |
|--|---------------|
| Outside diameter of stator<br>stamping       | : 280 mm      |
| Inside diameter of stator<br>stamping        | : 160 mm      |
| Thickness of stator frame                    | : 25 mm       |
| Number of stator slots<br>(taper-type slots) | : 36 slots    |
| Stator slot size                             | : 25 mm depth |

Width of teeth	: 6 mm parallel
Air gap	: 3 mm
Number of rotor slots (rectangle type)	: 30 slots
Rotor slot size	: 10 mm × 5.25 mm
Width of footrest	: 70 mm
Distance between footrests	: 214 mm
Size of bolt holes in the footrest	: 16 mm dia
Outer diameter of lifting eye	: 46 mm
Inner diameter of lifting eye	: 30 mm
Shaft diameter	: 38 mm
Number of ducts (equally spaced) on the stator frame	: 8
Number of ducts (equally spaced) on the rotor frame	: 4

[Take suitable scale and assume any missing dimensions]

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