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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 arrestor 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 :

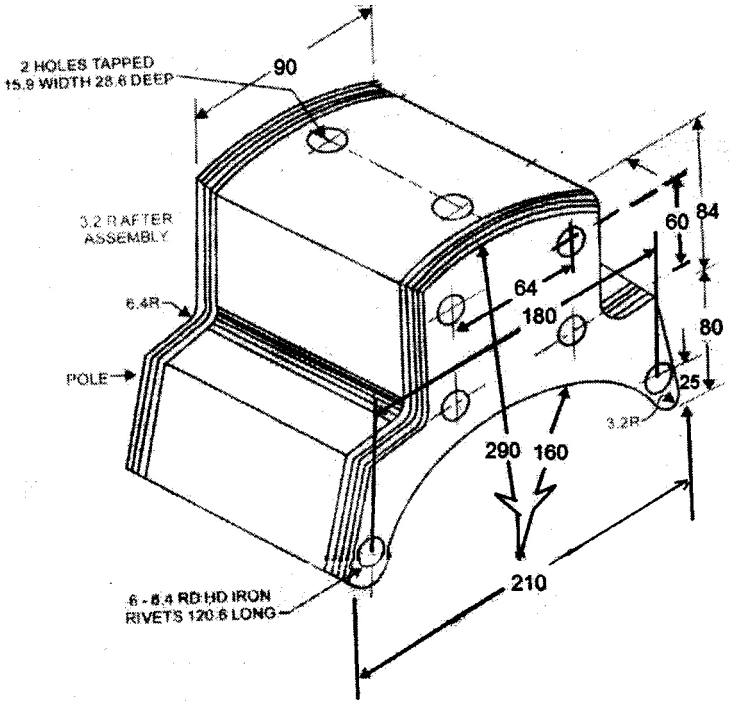
Number of slots : 28

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

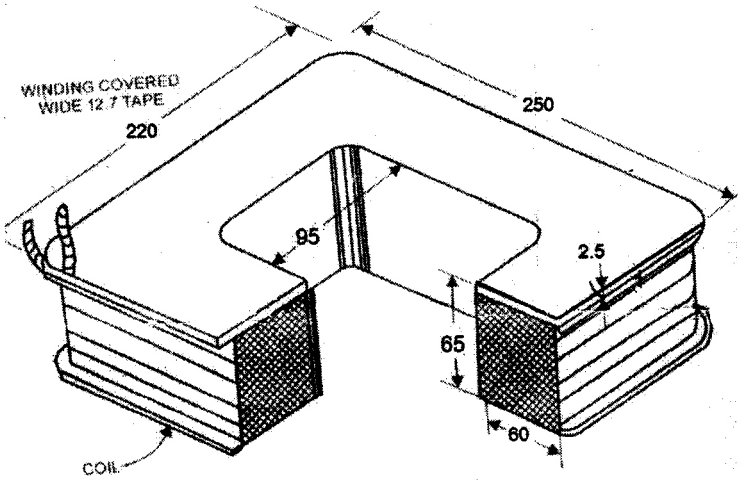
Number of commutator segments : 14

Also show the brush positions. 10

(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 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 circle 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 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 stamping	: 280 mm
Inside diameter of stator stamping	: 160 mm
Thickness of stator frame	: 25 mm
Number of stator slots (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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