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C09–EE–408

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2017

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.

(3) Drawing should be neat with necessary dimension.

1. Draw the sectional elevation and plan of a single pole knife switch.

2. Draw the free hand sketch of pole and field coil assembly.

3. Draw the sketch of steel tubular pole.

4. Draw a neat schematic diagram of 33 kV/11 kV substation earthing system and label the parts.

PART—B 20×2=40

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

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

5. *(a)* Draw the assembled sectional side view of armature core, hub and shaft whose dimensions are as follows :

Diameter of the shaft = 163 mm

Diameter of the core = 528 mm

Diameter of the hub = 465 mm

No. of slots = 56

Radius of the bolt circle = 170 mm

Width of the hub below the bolt = 32 mm

Width of the hub above the bolt = 10 mm

Flange thickness = 10 mm

Length of core gap equally spaced = 250 mm with 14 mm spacer

Distance between the two hubs = 376 mm

Assume the missing data if any.

(b) Develop 3-phase lap winding for an AC machine having 24 slots, 2 conductors per slot and 4 poles.

6. Draw the full sectional elevation and sectional plan of a 10 kVA, 3300/440 V, three-phase core type power transformer with the following dimensions :

Core type = 3 stepped

Diameter of the circumcircle = 80

Center to center distance between cores = 180

Yoke height = 80

Total height of the transformer = 520

Inside diameter of LT coil = 90

Outside diameter of LT coil = 110

Height of LT winding = 240

Number of turns per limb = 60

Inside diameter of HT coil = 145

Outside diameter of LT coil = 175

Height of HT winding = 240

Number of turns per limb = 250

All dimensions are in mm. Assume any missing data.

7. Draw the following views of a 7·5 hp, 440 V, 50 Hz, 3- , 1440 r.p.m. slip ring induction motor :

(a) Half-sectional front elevation

(b) Half-sectional end view

The Dimensions are as follows :

Outside diameter of stator stampings = 220

Inside diameter of stator stampings = 200

Stator core length = 105

Thickness of stator frame = 34

Stator slots

Type = Open type

Number = 24

Size = 8 28

Air gap = 2

Outside diameter of rotor stampings = 50

Inside diameter of rotor stampings = 35

Rotor slots

Type = Open type

Number = 24

Size = 5 15

Shaft diameter

At center = 20

At bearing = 16

Ducts

Outside diameter of duct = 176

Inside diameter of duct = 120

Spacing between ducts = 60

All dimensions are in mm. Assume any missing data.

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