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C16-EE-406

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BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—2021

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.

1. Draw the sectional elevation of protected flange coupling. 5
2. Draw a neat sketch of three-point starter for DC shunt motor and label the parts. 4+1
- \* 3. Draw the cross-sectional view of three-core belted cable and label the parts. 4+1
4. Draw a sketch of 132 kV steel tower for single circuit and mark the dimensions. 4+1

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\* PART—B

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

(2) Each question carries twenty marks.

(3) Take suitable scale wherever required and assume any other missing data.

5. (a) Develop a simple lap winding for DC machine having 6 poles, 36 armature slots and one conductor per slot. 10

(b) Draw a neat sketch of plate earthing with standard dimensions. 8+2

6. A 10 kVA 3-phase 3300/400 V transformer with 3 stepped-core has following dimensions. Draw the sectional elevation and plan as per the following data : 10+10

Circumcircle diameter : 80 mm

Distance between core centres : 190 mm

L.T. windings

Outer diameter : 110 mm

Inner diameter : 90 mm

H.T. winding

Outer diameter : 175 mm

Inner diameter : 145 mm

No. of turns per limb : 250 mm

Yoke height : 80 mm

L.T. winding height : 240 mm

H.T. winding height : 240 mm

Total transformer height : 420 mm

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

7. (a) Draw the half sectional end view of a 7 hp, 400 V, 50 Hz, 3-phase, 1440 r.p.m. slip ring induction motor.

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The main dimensions are given below :

Outside diameter of the stator stamping : 288 mm

Inside diameter of the stator stamping : 216 mm

Thickness of the stator frame : 31 mm

Stator slots : —

(i) Type : Open

(ii) Number : 36

(iii) Size :  $18 \times 12$  mm

Air gap : 2 mm

Outside diameter of the rotor stampings : 212 mm

Inside diameter of the rotor stamping : 36 mm

Rotor slots: —

(i) Type : Open

(ii) Number : 36

(iii) Size :  $12 \times 8$  mm

Shaft diameter : —

(i) at centre : 36 mm

(ii) at bearing : 32 mm

Ducts : —

(i) stator frame : 8

(ii) rotor : 4

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

- (b) Draw a neat sketch of rotor resistance starter of a 3-phase induction motor and label the parts.

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