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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

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 neat sketch of protective type flange coupling.

2. Draw the neat sketch of three-point starter and indicate the parts.

3. Draw the cross-section of H-type cable and label the parts.

4. Draw a 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.

5. *(a)* Develop a wave winding for a single-phase AC machine having 24 slots, one conductor per slot and four poles. 10

(b) Draw a neat schematic diagram of a transformer yard earthing system and label the important parts. 10

6. Draw the sectional elevation and plan of a single-phase 230/110-V, 5-kVA transformer with the following data : 10+10=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.

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

(i)	Outer diameter of stator	:	240 mm
(ii)	Inner diameter of stator	:	150 mm
(iii)	Air gap length	:	4 mm
(iv)	Type of slot	:	Taper
(v)	Size of stator slot	:	24 mm × 6 mm
(vi)	Outer diameter of rotor	:	146 mm
(vii)	Inner diameter of the rotor	:	40 mm
(viii)	Thickness of the stator frame	:	30 mm
(ix)	Shaft diameter at centre	:	40 mm
(x)	No. of rotor slots	:	30
(xi)	Type of rotor slots	:	Rectangle

(xii)	Size of rotor slots	:	10·5 mm × 5·75 mm
(xiii)	Width of footrest	:	70 mm
(xiv)	Distance between footrest	:	174 mm
(xv)	Size of bolt holes	:	16 mm dia
(xvi)	Outer diameter of lifting eye	:	46 mm
(xvii)	Inner diameter of lifting eye	:	30 mm

The shaft is supported by two ball bearings and end rings also serve as fans. Assume missing dimensions and draw to a suitable scale.

(b) Draw a neat sketch of rotor resistance starter of a 3-phase induction motor. 8

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