C14–EE–407

4446

BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—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.

(3) Drawing should be neat with necessary dimensions.

1. Draw standard symbols for electrical components of the following :

(a) Rewirable fuse

(b) Ceiling fan

(c) Buzzer

(d) DC generator

(e) Voltmeter

2. Draw a neat sketch of 3-point starter for DC shunt motor and label the parts.

3. Draw the wiring diagram of star-delta starter.

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

PART—B 20×2=40

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

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

(3) Drawing should be neat with necessary dimensions.

5. *(a)* An AC machine has 24 slots, 4 poles. Develop a 3- wave winding with one conductor per slot.

(b) Draw a neat sketch of pipe earthing system with pit dimensions and label the parts.

6. *(a)* Draw the sectional elevation and plan of a 1- 220/660 V, 10 kVA transformer with the following data :

Cross-section of the core	3 stepped core
Diameter of the circle	6·5 cm
Distance between core centres	18·5 cm
Total height of yoke	6·0 cm
Outer dia of 1st layer	9·25 cm
Inner dia of 1st layer	7·0 cm
Outer dia of 2nd layer	12·1 cm
Thickness of each layer	1·2 cm
Height of LT winding	20·0 cm
Outer dia of HT winding	17·0 cm
Inner dia of HT winding	12·5 cm
Number of coils per limb	4
Height of core	36·0 cm

Use five Bakelite rings each of 4 mm thickness at top and bottom. Assume any missing dimensions.

(b) Draw a neat sketch of 132 kV tower for single circuit with standard dimensions.

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

The main dimensions have been given below :

(i)	Outside diameter of the stator stamping	= 288 mm
(ii)	Inside diameter of the stator stamping	= 216 mm
(iii)	Stator core length	= 106 mm
(iv)	Thickness of the stator frame	= 31 mm
(v)	Slots :	
	(1) Type	= Open type
	(2) Number	= 36
	(3) Size	= 18×12
(vi)	Air gap	= 2 mm
(vii)	Outside diameter of the rotor stamping	= 212 mm
(viii)	Inside diameter of the rotor stamping	= 36 mm
(ix)	Rotor core length	= 106 mm
(x)	Slots :	
	(1) Type	= Open type
	(2) Number	= 36
	(3) Size	= 12×8
(xi)	Shaft diameter :	
	(1) At centre	= 36 mm
	(2) At bearing	= 32 mm
(xii)	Ducts :	
	(1) Stator frame	= 8
	(2) Rotor	= 4
	(3) Spacing between ducts	= Equally spaced

Assume any other missing dimensions. 10

(b) Draw the line diagram of a thermal power station and label the parts. 10

★ ★ ★