* 3 4 7 9 *

C09–EE–408

3479

BOARD DIPLOMA EXAMINATION, (C–09)

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.

(3) Drawing should be neat with necessary dimensions.

1. Draw cross-sectional view of HRC fuse and label the parts.

2. Draw the sectional end view of a commutator assembly.

3. Draw a free-hand sketch of 132 kV tower for double circuit and mention the standard dimensions.

4. Draw a neat line diagram of a 132/33 kV substations layout and label.

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)* Draw the half-sectional end elevation looking from the shaft end of a 100 kW DC generator with the following data : 10

External diameter of armature stamping	:	42 cm
Internal diameter of armature stamping	:	20 cm
No. of slots	:	39
Size of slot	:	4 cm×1·2 cm
Height of pole	:	16 cm
Width of pole	:	12 cm
Interpole size	:	15 cm×4·5 cm
Air gap at main pole	:	0·5 cm
Air gap at interpole	:	0·7 cm
Thickness of yoke	:	6·8 cm

Note : Assume any other missing data.

(b) Develop a 3- lap winding for an a.c. machine having 24 slots, 4 poles and one conductor per slot. 10

6. Draw the following views of a 3-phase, 250 kVA, 11 kV/400 V transformer : 20

(a) Front elevation full in section

(b) Plan full in section

The detailed dimensions of the parts are as follows :

Core :

1. Cross-section of the core	:	3-step core
2. Dia of the circum-circle	:	24 cm
3. Distance between the adjacent of centres core	:	42·5 cm

Yoke :

Yoke height	:	25 cm

LT Winding :

1. Outside diameter of LT coil	:	28·3 cm
2. Inside diameter of LT coil	:	25 cm
3. Height of LT winding	:	43·5 cm
4. Number of turns per phase	:	12

HT Winding :

1. Outside diameter of HT coil	:	41·5 cm
2. Inside diameter of HT coil	:	34·3 cm
3. Height of HT winding	:	43·5 cm
4. Number of turns per phase	:	572

Total height of the transformer : 100 cm

Note : Other missing data may be assumed.

7. Draw the following views of a 7·5 h.p., 400 V, 50 Hz, 3-phase, 1440 r.p.m. slip-ring induction motor : 20

(a) Half-sectional front elevation

(b) Half-sectional end view

The main dimensions have been given below :

1. Outside diameter of the stator stamping	:	288
2. Inside diameter of the stator stamping	:	216
3. Stator core length	:	106
4. Thickness of the stator frame	:	31
5. *Slots* :		
(a) Type	:	Open type
(b) Number	:	36
(c) Size	:	8×12
6. Air gap	:	2
7. Outside diameter of the rotor stamping	:	212
8. Inside diameter of the rotor stamping	:	36
9. Rotor core length	:	106

10. *Slots* :

(a)	Type	:	Open type
(b)	Number	:	36
(c)	Size	:	12×8

11. *Shaft diameter* :

(a)	At centre	:	36
(b)	At bearing	:	32

12. *Ducts* :

(a)	Stator frame	:	8
(b)	Rotor	:	4
(c)	Spacing between ducts	:	equally spaced

Note: All the dimensions are in mm.

Assume any other missing dimensions.

★ ★ ★