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C20-EE–307

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2024

DEEE - THIRD SEMESTER EXAMINATION

ELECTRICAL ENGINEERING DRAWING—I

Time : 3 Hours] [*Total Marks* : 60

PART—A

4×5=20

Instructions : (1) Answer **all** questions.

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

1. Draw the view of guarding method for HV line over LV line crossing.

2. Draw the free hand sketch of single-phase energy meter.

3. Draw a neat sketch of four point starter for DC Compound motor and label the parts.

4. Draw a neat sketch the bow stay arrangement for LT pole.

PART—B

2×20=40

Instructions : (1) Answer *either (a) or (b)* from the questions.

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

5. *(a)* Draw the half sectional elevation and end view looking from the shaft end of a 100 kW DC generator with the following data : 20

External diameter of armature stampings	42 cm
Internal diameter of armature stampings	20 cm
No. of slots	39
Size of slots	4 cm × 1·2 cm
Height of pole	16 cm
Width of pole	12 cm
Interpole size	4·5 cm × 15 cm
Air gap at main pole	0·5 cm
Air gap at interpole	0·7 cm
Thickness of yoke	6·8 cm
Armature core length suitably	32 cm

Assume any other missing data.

(OR)

(b) Taking a suitable scale and draw the half sectional elevation and side view of a commutator assembly with the following dimensions. 20

Diameter of shaft	42 mm
Diameter of commutator	140 mm
Length of commutator	124 mm
Width of Riser	8 mm
Depth of Commutator Segment	32 mm
Height of riser	8 mm

Assume the missing dimensions suitably and take 76 commutator segments.

6. *(a)* *(i)* Develop a single layer wave winding for a 4 pole DC machine having 34 armature slots and mark the brush position. 10

(ii) Draw the neat sketch of pipe earthing with pit dimensions and label the parts. 10

(OR)

(b) *(i)* Draw developed winding diagram of a double layer lap winding for a 4 pole DC machine with 16 slots and mark brush positions. 10

(ii) Draw the earthing scheme for 33/11 kV substation. 10

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