



C23-EE-406

23440

**BOARD DIPLOMA EXAMINATION, (C-23)
OCTOBER/NOVEMBER—2025
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 Electrical symbols for the following electrical devices :
 - (i) Variable resistance
 - (ii) Battery
 - (iii) Buzzer
 - (iv) One-way switch
 - (v) DC generator
2. Draw the guarding system for the H.V. line crossing over railway lines and label the parts.
3. Draw the half-sectional end view of the armature core with the following main dimensions :
 - (i) Diameter of the shaft : 60 mm
 - (ii) Diameter of the core : 440 mm
 - (iii) Diameter of the hub : 380 mm
 - (iv) Radius from the centre of the axle to the bolt circle : 125 mm
 - (v) Distance of the ventilating duct from the axle centre : 60 mmAssume missing data if any suitably and take a suitable scale.

4. Draw the plan and elevation of core stepping sections of a three-stepped transformer core with the diameter of the core as 40 mm and height of core as 50 mm.

PART—B

20×2=40

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

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

5. Draw the half-sectional end view and half-sectional front elevation of a 90 kW DC generator with the main dimensions as given below : 10+10

(i) External diameter of armature stamping	: 400 mm
(ii) Internal diameter of armature stamping	: 220 mm
(iii) No. of slots	: 32
(iv) Size of slot	: 35 × 15 mm
(v) Total height of main pole including pole shoe	: 150 mm
(vi) No. of main poles	: 4
(vii) Main pole size	: 70 × 30 mm
(viii) Length of main pole	: 200 mm
(ix) No. of inter poles	: 4
(x) Inter pole size	: 110 × 50 mm
(xi) Air gap	: 4 mm
(xii) Length of the armature core	: 240 mm
(xiii) Thickness of yoke	: 50 mm
(xiv) Diameter of commutator up to contact surface	: 220 mm
(xv) Diameter of commutator up to riser	: 240 mm
(xvi) Shaft diameter at coupling end	: 60 mm

Assume missing data if any suitably and take a suitable scale.

6. Draw the half-sectional end view and half-sectional front elevation of three-phase 440 volts, 5 HP squirrel-cage induction motor with the following data : 10+10

- (i) Outer diameter of stator stampings : 230 mm
- (ii) Inner diameter of stator stampings : 164 mm
- (iii) Length of stator core : 120 mm
- (iv) Thickness of stator frame : 30 mm
- (v) Type of stator slot : open
- (vi) Number of stator slots : 36
- (vii) Size of stator slots : 15 mm × 8 mm
- (viii) Width of air gap : 2 mm
- (ix) Outer diameter of rotor stampings : 160 mm
- (x) Inner diameter of rotor stampings : 35 mm
- (xi) Type of rotor slot : open
- (xii) Number of rotor slots : 36
- (xiii) Size of rotor slots : 12 mm × 6 mm
- (xiv) Shaft diameter at centre : 35 mm
- (xv) Shaft diameter at bearings : 30 mm

Assume any other missing data suitably and draw to a suitable scale.

7. Develop a single layer wave winding diagram for a 24 armature slots, 4-pole DC machine with winding table showing the brush position and ring diagram. 20

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