



C16-EE-406

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**BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER—2020
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) All dimensions are in mm.

1. Draw the side view of flange coupling. 5
2. Draw a neat sketch of three point starter for DC shunt motor and label the parts. 4+1
3. Draw neatly the sectional view of three core belted cable and label the parts. 4+1
4. Draw a neat sketch of bow stay arrangement for LT pole with strain insulator. 5

PART—B

20×2=40

- Instructions :** (1) Answer **any two** questions.
(2) Each question carries **twenty** marks.
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

5. (a) Develop a simple wave winding for a 4 pole, 34 armature slot DC machine and one conductor per slot. Take $Y_b = Y_f$, single layer. 10

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[Contd....

(b) Draw a neat sketch of plate earthing with standard dimensions. 8+2

6. A 10 kVA 3-phase 3300/400 V transformer with 3 stepped core has following dimensions. Draw the sectional elevation and plan as per the following data : 10+10

| | |
|-------------------------------|--------|
| Circumcircle dia | 80 mm |
| Distance between core centres | 190 mm |

L.T. windings

| | |
|-----------|--------|
| Outer dia | 110 mm |
| Inner dia | 90 mm |

H.T. winding

| | |
|--------------------------|--------|
| Outer dia | 175 mm |
| Inner dia | 145 mm |
| No. of turns per limb | 250 mm |
| Yoke height | 80 mm |
| L.T. winding height | 240 mm |
| H.T. winding height | 240 mm |
| Total transformer height | 420 mm |

Assume all other missing data and draw to a suitable scale.

7. (a) Draw the half sectional end view of a 7 hp, 400 V, 50 Hz, 3-phase, 1440 r.p.m. slip ring induction motor. 12

The main dimensions are given below :

| | |
|---|------------|
| Outside diameter of the stator stamping | 288 mm |
| Inside diameter of the stator stamping | 216 mm |
| Thickness of the stator frame | 31 mm |
| Stator slots— | |
| Type | Open |
| Number | 36 |
| Size | 18 × 12 mm |
| Air gap | 2 mm |
| Outside diameter of the rotor stampings | 212 mm |
| Inside diameter of the rotor stamping | 36 mm |

| | |
|-----------------------|----------------|
| Rotor slots | |
| Type | Open |
| Number | 36 |
| Size | 12 × 8 mm |
| Shaft diameter | |
| at centre | 36 mm |
| at bearing | 32 mm |
| Ducts | |
| stator frame | 8 |
| rotor | 4 |
| spacing between ducts | equally spaced |

Assume all other missing data and draw to a suitable scale.

- (b) Draw a neat sketch of rotor resistance starter of a 3-phase induction motor and label the parts.

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