

7251

BOARD DIPLOMA EXAMINATION, (C-20)

MAY—2023

DEEE - THIRD SEMESTER EXAMINATION

ELECTRICAL ENGINEERING DRAWING—I

Time : 3 hours ]

[ Total Marks : 60

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**PART—A**

5×4=20

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

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

1. Draw the free hand sketch of HRC fuse.
2. Draw the symbols for (a) capacitor, (b) battery, (c) earth, (d) exhaust fan and (e) buzzer.
3. Draw the neat diagram of a 4-point starter and label the parts.
4. Draw the free hand sketch of a 132 kV tower for single circuit.

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**PART—B**

20×2=40

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **twenty** marks.

5. (a) Draw the sectional views of the armature core, hub and shaft whose dimensions are as follows (elevation and end view) : 20
- |   |  |
|---|--|
| Diameter of the shaft                                 | 130 mm                                     |
| Diameter of the core                                  | 900 mm                                     |
| Diameter of the hub                                   | 770 mm                                     |
| Radius from the centre of the axle to the bolt circle | 210 mm                                     |
| Diameter of the bolt head                             | 20 mm                                      |
| Dimensions of ventilating duct                        | 200 mm towards bolt<br>240 mm towards axle |
| Distance of duct from the axle centre                 | 105 mm                                     |
| Flange thickness                                      | 20 mm                                      |
| Depth of flange                                       | 90 mm                                      |
| Length of core gap equally spaced                     | 230 mm width 10 mm                         |
| Total distance between two hubs                       | 500 mm                                     |
- Assume any missing data suitably.

**(OR)**

- (b) Draw the half sectional elevation 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          |
| Armature core length                    | 24 cm       |
| Size of the slot                        | 4 × 1.2 cm  |
| Height of pole                          | 16 cm       |
| Width of pole                           | 12 cm       |
| Interpole size                          | 4.5 × 15 cm |
| Air gap at main pole                    | 0.5 cm      |
| Air gap at inter pole                   | 0.7 cm      |
| Thickness of yoke                       | 6.8 cm      |
- Assume any missing data.

6. (a) (i) Develop a simple wave winding for a DC machine having 4 poles, 34 armature slots and single turn coil. 10
- (ii) Draw the schematic diagram of 132/11 kV substation with earthing. 10

**(OR)**

- (b) (i) In a 32 slot armature, develop a single layer lap winding for a DC machine with 4 poles. 10
- (ii) Draw the plate earthing and label each part. 10

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