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C20-EE-307

**7251**

**BOARD DIPLOMA EXAMINATION, (C-20)**

**JUNE/JULY—2022**

**DEEE - THIRD SEMESTER EXAMINATION**

**ELECTRICAL ENGINEERING DRAWING - I**

*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 sketch of moving iron type instrument and label the parts.
2. Draw the cross-sectional view of HRC fuse cartridge and label the parts.
3. Draw the sketch of three-point starter for a DC shunt motor and label the parts.
4. Draw the sketch of bow stay arrangement for LT line.

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**PART—B**

20×2=40

**Instructions :** (1) Answer the following questions.

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

5. (a) Draw the half sectional end elevation looking from the shaft end of a 90 kW DC generator with the main dimensions as given below : 20

|   |   |             |
|---|---|-------------|
| External diameter of armature stamping        | : | 400 mm      |
| Internal diameter of armature stamping        | : | 220 mm      |
| No. of slots                                  | : | 32          |
| Size of slot                                  | : | 35 × 15 mm  |
| Total height of main pole including pole shoe | : | 150 mm      |
| No. of main poles                             | : | 4           |
| Main pole size                                | : | 70 × 30 mm  |
| Length of main pole                           | : | 200 mm      |
| No. of inter poles                            | : | 4           |
| Inter pole size                               | : | 110 × 50 mm |
| Air gap                                       | : | 4 mm        |
| Length of the armature core                   | : | 240 mm      |
| Thickness of yoke                             | : | 50 mm       |
| Diameter of commuter up to contact surface    | : | 220 mm      |
| Diameter of commuter up to riser              | : | 240 mm      |
| Shaft diameter at coupling end                | : | 60 mm       |
| Total length of the shaft                     | : | 600 mm      |

All dimensions are in mm. Assume any missing data.

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**(OR)**

- (b) Draw the half sectional elevation and side view of a commutator assembly with the following dimensions : 20

Diameter of commutator : 309 mm

Width of riser : 24 mm

Height of riser : 14 mm

Length of V notch : 138 mm

Length of commutator : 139 mm

Assume any missing data. All dimensions are in mm.

6. (a) (i) Develop a simple lap winding for 36-armature slots, 6-pole DC machine with winding table. Showing the brush position and ring diagram. 10

- (ii) Draw the earthing layout plan for 132/33 kV substation and label the parts. 10

**(OR)**

- (b) (i) Develop a single layer wave winding for 34-armature slots, 4-pole DC machine with winding table ring diagram showing the brush position. 10

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

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