C14–EE–**407**

4467

BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2017

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 elevation and side view of protected flange coupling.

2. Draw the wiring diagram of autotransformer starter.

3. Draw the SF_6 circuit breaker and label the parts.

4. Draw the 33 kV concrete pole structure for single circuit and mark the clearances.

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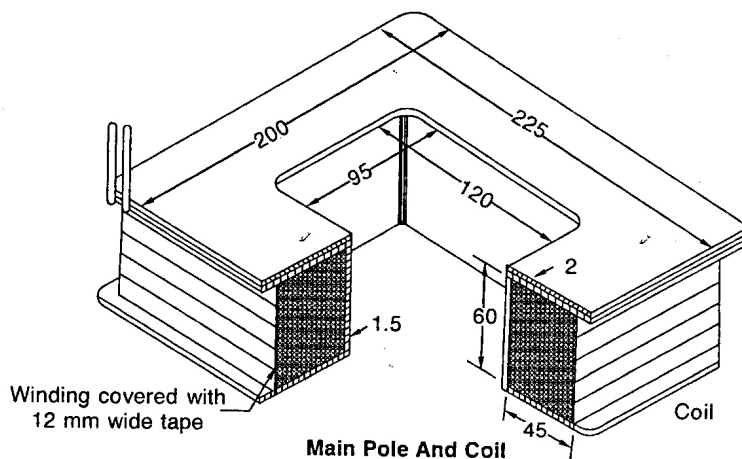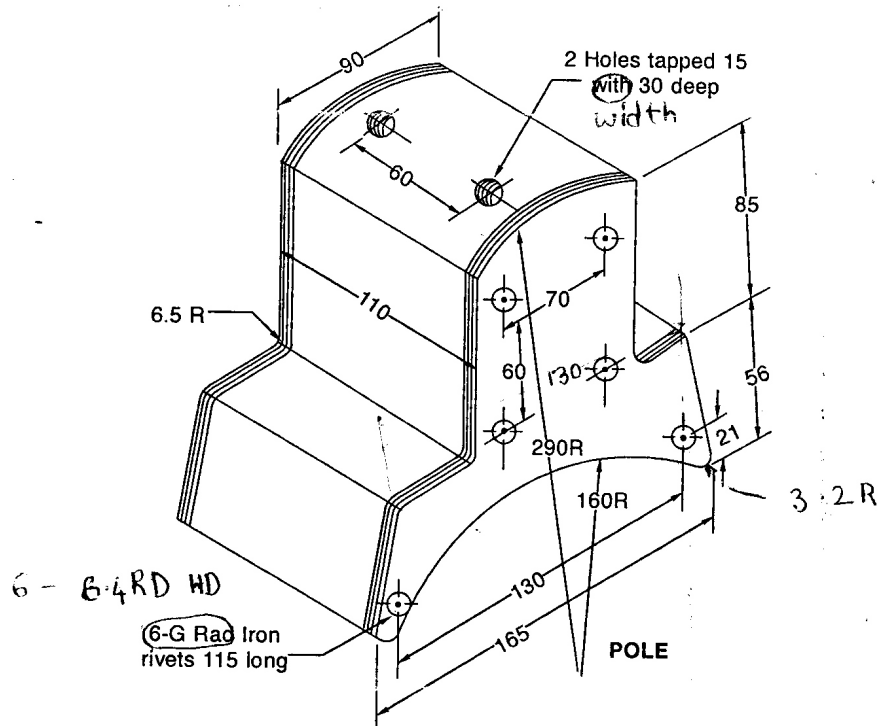**PART—B**   20×2=40

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

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

5. *(a)* The isometric view of the field coil of a DC machine is shown in the figure below :

Draw the assembled sectional elevation and plan.   10

(b) Develop a single-phase single-layer wave winding for a 4-pole AC machine having 24 slots.　　　10

6. (a) Draw the sectional plan of a 3-phase, 220/660 V, 10 kVA core-type transformer with the following data :　　　10

Cross-section of the core	3 stepped
Diameter of the circle	6·5 cm
Distance between core centers	18·5 cm

LT Winding :

Outer diameter of 1st layer	9·25 cm
Inner diameter of 1st layer	7·0 cm
Outer diameter of 2nd layer	12·1 cm
Thickness of each layer	1·2 cm

HT Winding :

| Outer diameter of HT winding | 17·0 cm |
| Inner diameter of HT winding | 12·5 cm |

Assume any missing data.

(b) Draw the single-line diagram of thermal power plants.　　　10

7. (a) Draw the half-sectional end view of 5 h.p., 400/440 V, 50 Hz, 1440 r.p.m., 3-phase squirrel cage induction motor. The main dimensions have been given below :　　　10

(i) Outside diameter of the stator stampings = 230

(ii) Inside diameter of the stator stampings = 164

(iii) Thickness of the stator frame = 25

(iv) Slots :

- Types = open tyep
- Number = 36
- Size = 15 × 8

(v) Air gap = 2

(vi) Outer diameter of the rotor stamping = 160

(vii) Inside diameter of the rotor stamping = 35

(viii) Shaft diameter :

- At centre = 35
- At bearing = 30

The rotor has totally closed type slots and contains bare conductors which are short circuited at both sides.

Other missing data may be assumed (All dimensions are in mm).

(b) Draw a neat schematic diagram of a transformer yard earthing system and label the important parts.   10

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