



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 SF₆ circuit breaker and label the parts.
4. Draw the 33 kV concrete pole structure for single circuit and mark the clearances.

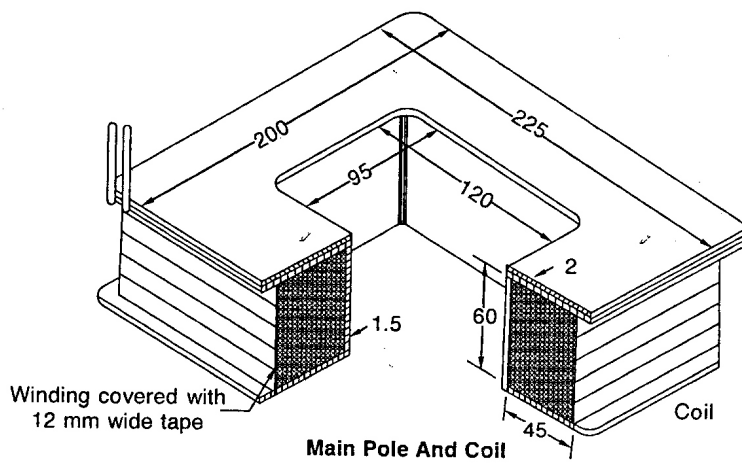
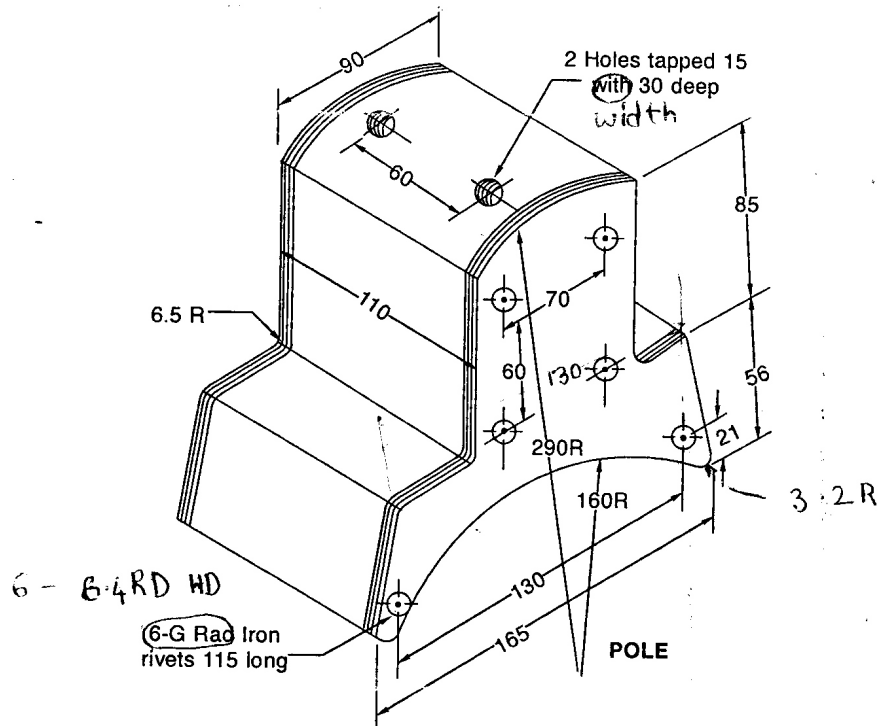
PART—B

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 type
 - 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
