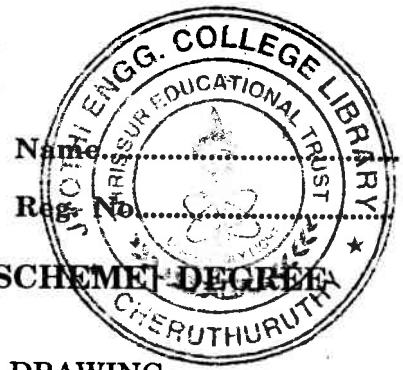


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**SIXTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE  
EXAMINATION, APRIL 2016**

**EE/PTEE 09 605—ELECTRICAL ENGINEERING DRAWING**

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

*Each question carries 2 marks.*

- I. (a) Draw the developed winding diagram of double layer lap winding for a DC machine having 18 armature slots, two conductors per slot and 6 poles. Also mark their brush position.
- Or*
- (b) Draw a mush winding diagram for a 4-pole, 36 slots, three-phase armature.
- (15 marks)
- II. (a) Make a proportionate longitudinal cross-section of a limb of a 3-phase, oil cooled power transformer showing the HT and LT windings. Diameter of circumscribing iron core circle = 22.6 cm. Diameter of secondary winding in two concentric layers, inside 25 cm., outside 28.1 cm. Height of secondary winding = 41.2 cm., Diameter of primary winding, inside 32 cm., outside 36.8 cm., Total height of primary winding, including 10 spacers, 40 cm.
- Or*
- (b) Draw the layout and single line diagram of a 11 kV outdoor distribution sub-station.
- (20 marks)
- III. (a) Draw the half sectional elevation and quarter sectional end of a 3-phase slip ring induction motor with the following dimensions :
- Inside dia. of stator = 55 cm.
  - Stator length = 20 cm.
  - Stator overhang in each side = 10 cm.
  - Length of stator frame = 38 cm.
  - Diameter of rotor = 54.6 cm.
  - Total length of motor on footstep = 73 cm.
  - Height of base up to eye bolt = 93.04 cm.
  - Width at foot step = 92.76 cm.
  - Foot thickness = 5 cm.
  - Length = 14 cm.
- Or*

Turn over

(b) Draw the half-sectional end and elevation views of a 25 kVA, 400 V, 1500 r.p.m., 3-phase salient pole alternator. The main dimensions are :

Outside diameter of stator stamping = 400 mm.

Inside diameter of stator stamping = 290 mm.

Thickness of stator frame = 36 mm.

Stator core length = 135 mm.

Slots-open type, 48 nos, size  $32 \times 12$  mm. air gap = 2 mm.

Pole axial length = 135 mm.

Pole width = 70 mm.

Pole height with shove = 75 mm.

Shore height = 18 mm.

Shaft diameter at centre = 70 mm.

Shaft diameter at bearing = 55 mm.

Other missing data may be assumed.

(35 marks)