

**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2006**

EE 2K 605—ELECTRICAL ENGINEERING DRAWING

Time : Three Hours

Maximum : 100 Marks

1. (a) Draw the full sectional elevation and sectional plan of core and yoke assembly for a 500 kVA 6600/400 V single phase transformer. Dimensions are given below :

Core :

Laminated steel plates of 0.35 mm thickness, core construction—cruciform

Width of largest stamping = 28 cm.

Width of smallest stamping = 17.5 cm.

Height of core

Centre to centre = 43 cm

distance between cores = 49 cm.

Core laminations are fixed by means of two end plates 3 mm. thick by a bolt of dia 1.2 cm.

Yoke :

Construction – cruciform

Yoke height = 25 cm.

Yoke length = 77 cm.

Total height of transformer = 99 cm.

Or

- (b) Draw the sectional elevation of a single phase shell type transformer for the dimensions given below :

Core width = 14 cm.

Core depth = 37 cm.

Core height = 38 cm.

Core length = 54 cm.

Window size = 13 × 24 cm.

L.V. coil = 4

H.T. coil = 4

No. of turns in L.V per coil = 10

No. of turns in H.T. per coil = 40

Cross-section of HT conductor = 28 sq.mm.

Cross-section of LT conductor = 125 sq.mm.

Average height of one turn = 1.8 cm.

Coil to be arranged for medium reactance.

(25 marks)

Turn over

2. (a) Draw the typical layout of a 11 kV/415 V outdoor distribution substation with pole mounted transformer. Show all the protective devices and name the essential parts.

Or

- (b) Draw the layout of a captive powerplant of about 250 MVA with all the protective devices. Name the essential parts.

(25 marks)

3. (a) Draw the half sectional front and half sectional side elevation of an AC 3300 V, 3-phase 50 cycle, 5740 kVA turbo generator of 3000 rpm.

Armature (Stator) :

Outside diameter = 142 cm.

Inside diameter = 68.5 cm.

Slots semi-closed type 42 nos. of size 2.3×9.5 cm.

Rotor :

One piece forging :

No. of slots = 24

Slot at mid-pole spaced at 31.5

slot depth = 11.75

Airgap length (radial) = 2.86 cm.

Shaft diameter (at the bearing) = 22 cm.

Any missing data may be assumed.

Or

- (b) 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 on each side = 10 cm.

Length of the stator frame = 38 cm.

Dia. of rotor = 54.6 cm.

Total length of the motor at footstep = 73 cm.

Height of base up the eye bolt = 93.04 cm.

Width at footstep = 92.76 cm.

Foot thickness = 5 cm.

Length = 14 cm.

(50 marks)