



Sixth Semester B.E. Degree Examination, December 2010
Electrical Drawing and CAD

Time: 3 hrs.

Max. Marks:100

- Note:** 1. Answer any **FOUR** full questions from Part-A on drawing sheet.
 2. Answer any **ONE** full question from Part-B in answer book.
 3. Draw neat, proportionate diagrams.

PART – A

- 1 a. Draw single line diagrams of
 (i) Nuclear power generation system (ii) 33kV/11kV substation. (12 Marks)
 b. Draw a front view and top view of three-phase transformer with 3-core, core diameter = 26mm, height of core = 55mm, height of yoke = 28mm, length of yoke = 110 mm. (08 Marks)
- 2 Draw the developed diagram of a D.C. machine having 4 poles, 26 slots, single layer progressive lap winding. (20 Marks)
- 3 Draw the developed winding diagram for an alternator having 3-phase, 12 slots, 4-pole, double layer full pitch wave, with star connections. (20 Marks)
- 4 Draw the i) half sectional elevation and ii) half sectional end view of a DC machine, with the following details:
 Shaft diameter = 5 cm, Outside diameter of armature = 36 cm,
 Axial length of armature = 25 cm, Diameter of commutator = 23 cm,
 Number of poles = 4, Number of interpoles = 4
 Thickness of yoke = 3.5 cm, Pole height = 16cm,
 Pole width = 12cm. Indicate all the parts. (20 Marks)
- 5 Draw to scale: (a) half sectional end view (b) front view of alternator, with the following data:
 Diameter of shaft = 7.6cm Diameter of rotor = 46 cm
 Height of pole = 7.6 cm Outer diameter of stator = 76 cm
 Diameter of frame (outer) = 92 cm Number of poles = 10
 Length of yoke = 22 cm Length of stator = 16 cm. (20 Marks)
- 6 Draw to scale front elevation and top view of a three-phase core type power transformer having following details:
 Diameter of core = 23 cm, 3 step core, window height = 47 cm
 Overall width = overall height of core = 98 cm
 Secondary winding (low tension) – Inside diameter = 25 cm
 Outside diameter = 27 cm,
 Winding in 2 layers
 Secondary conductor = 6 strips in parallel each 9.55 mm × 3.2 mm
 Primary (high tension) – Inside diameter of winding = 32 cm
 Outside diameter of winding = 37cm,
 Number of turns = 750
 Primary conductor = 2.64 mm diameter, 33mm diameter with insulation
 8 coils of 83 turns each, arranged in 7 layers, height = 3.75 cm
 2 coils of 43 turns each, height = 2.35 cm (20 Marks)

PART - B

- 7 a. Explain the following AUTOCAD commands, with examples:
- i) ARRAY
 - ii) DIMENSIONING
 - iii) SNAP
 - iv) TEXT FORMAT
 - v) TRIM
- (10 Marks)
- b. Explain the step by step procedure to draw simplex lap winding. (10 Marks)
- 8 Draw a proportionate preparatory sketch and explain step by step procedure to draw a single line diagram of a generating station having the following details:
- a. Generator : One 100 MVA, 11 kV, 3-phase star connected.
 - b. Bus : Double bus with a bus coupler.
 - c. Transformer : One, 100 MVA, 11 kV/220 kV .
 - d. Outgoing : Two, 220 kV.
- (20 Marks)

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