Sixth Semester B.E. Degree Examination, June / July 08
Electrical Drawing and CAD

Time: 3 hrs.   Max. Marks:100

Note : *Answer any Four questions from Part -A, and one from Part - B*

PART - A

1. a. Draw layout diagram of a typical thermal power plant. **(08 Marks)**
   b. Draw a single line diagram for a substation with two 66 kV incoming lines and four 11 kV outgoing lines, showing all the components adequately and their symbolic details. **(12 Marks)**

2. Draw a developed winding diagram for a 4 pole, 28 slot, single layer, progressive, simplex wave winding for DC generator armature. Show the poles, sequence diagram, connection table and the other details. **(20 Marks)**

3. Draw a developed winding diagram for the winding for stator of a 3 phase, 4 pole, 24 slot induction motor double layer, lap winding with full pitched coils. Show the connections in delta. **(20 Marks)**

4. A single phase, 500 kVA, 6600 /400 V transformer has the following details.
   core diameter – 330 mm, cruciform core, distance between centers of core – 490 mm, height of yoke – 250 mm, yoke length – 770 mm, total height of the transformer – 930 mm.
   <u>LV winding details :</u>
   Inner diameter = 337.5 mm outer diameter = 383 mm height of LV winding = 362 mm.
   <u>HV winding details :</u>
   Inner diameter = 415 mm, outer diameter = 468 mm. Height of HV winding = 362 mm.
   Show front elevation and plan with right half in section with 1:5 scale. Show the dimensions neatly. Show the endplates nut –bolts suitably. **(20 Marks)**

5. Draw to scale 1 : 6 the i) end view right half in section. Ii) front elevation top half in section for a DC machine with the following details for yoke and pole assembly only.
   <u>Yoke details :</u>
   outer diameter = 49.6 cm, inner diameter = 40 cm, axial length = 16 cm
   <u>Details of main pole :</u>
   Number of poles = 4, width = 6 cm height = 9.6 cm. Axial length = 12.8 cm, show nut, bolts suitably **(20 Marks)**

6. Draw i) end view (top half in section) ii) front elevation (top half in section) for the rotor of a squirrel cage rotor induction motor with the following details. Show the dimension neatly.
   outer diameter of rotor core = 15 cms
   diameter of shaft = 2.54 cm. No of slots = 30 rectangular slots of size 1 × 0.5 cms. Axial length of rotor core = 12 cms. End ring cross section 1 × 1 cm. show the typical fans. Use scale of ½. **(20 Marks)**

PART - B

7. a. What is CAD? What are the advantages of CAD over the conventional drawing? **(10 Marks)**
   b. Explain any five commands that are used commonly in CAD. **(10 Marks)**

8. Explain the various steps followed in drawing a typical power system including the generation, transmission and distribution using single line diagram using Auto CAD. **(20 Marks)**

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