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NEW SCHEME

Sixth Semester B.E. Degree Examination, July 2007
Electrical and Electronics Engineering
Electrical Drawing and CAD

Time: 3 hrs.]   [Max. Marks:100

Note : *1. Answer any FOUR questions from PART A*
and any ONE question from PART B.
2. Assume any missing data.

PART A

1   a. Draw a neat schematic arrangement of a thermal power plant.   (08 Marks)
     b. Draw a neat single line diagram of a 66 kV / 11 kV substations, showing all the
         necessary equipments.   (12 Marks)

2   Draw a neat developed winding diagram for a D.C. Machine along with the brushes and
     poles with following data:
     Number of conductors = 32, number of poles = 4, winding type = simplex progressive
     wave.   (20 Marks)

3   Draw a developed winding diagram for an A.C. motor with following data:
     Type of winding = lap, number of poles = 4, number of slots = 24, number of coils sides
     / slot = 2, the winding is to be arranged to eliminate the 3rd harmonics.   (20 Marks)

4   Draw to half scale the sectional end elevation and front elevation of the yoke and pole
     assembly with the following data:
     Width of the pole = 14 cm, pole arc = 20 cm, height of the pole shoe = 20 cm, radius of
     pole arc = 28 cm. thickness of yoke = 1.5 cm, thickness of end plate 3 mm. Show clearly
     the method of fixing the pole core laminations and the pole core rod of suitable
     dimensions.   (20 Marks)

5   Draw the half section end view and half section elevation of the squirrel cage rotor
     directly mounted over the shaft. Show clearly the method of fixing the rotor with the
     shaft. Diameter of rotor = 17.88 cm, length of rotor = 13.5 cm, one radial cooling duct =
     1 cm wide, rotor conductor diameter = 0.9 cm, distance between ring and core = 0.5 cm,
     diameter of shaft below rotor core = 3.5 cm. Six vanes are fixed to the rotor and plates to
     help cooling.   (20 Marks)

6   Draw to half scale the sectional plan of one limb showing the winding on a core of oil
     immersed 12000 / 550 V 3-phase transformer. The core is 24 cm in diameter and has 3-
     steps. The internal and external diameters of low tension windings are 25.4 cm and
     29.8 cm respectively, and of high tension 2.3 cm thick and outer diameter 40.5 cm. Show
     the arrangements for keeping the coils in position and the oil ducts.   (20 Marks)

PART B

7   a. Explain the following commands with examples:
         i) Mirror ii) TRIM iii) OFFSET iv) HATCH v) ROTATE.   (10 Marks)
     b. Explain the step by step procedure to draw a simplex lap winding.   (10 Marks)

8   Draw proportionate preparatory sketch and explain step by step procedure to draw a
     single line diagram of a generating station having the following details:
     a. Generators: One 100 MVA, 11 kV, 3ph star connected
     b. Bus: Double bus with a bus coupler
     c. Transformer: One, 100 MVA, 11/220 kV
     d. Out going: Two, 220 kV.   (20 Marks)

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