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Reg. No. : .....

Name : .....

Seventh Semester B.Tech. Degree Examination, April 2015
(2008 Scheme)
08.705 : ELECTRICAL DRAWING (E)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **any two** questions :

1. a) Draw a 220 kV double circuit transmission tower. 15
   b) Sketch neatly the half sectional view of a Pin insulator. 10

2. a) Draw a single line layout of a 220 kV substation and mark all the equipments with specifications. 15
   b) Draw the half sectional elevation of the commutator assembly with the following dimensions :
   Diameter of the commutator = 13 cm
   Pole arc length of the commutator = 12 cm
   Diameter of the shaft = 4 cm
   Segment pitch with mica = 0.6 cm
   Mica thickness = 0.1 cm. 10

3. Draw a suitable scale the detailed sectional end view of a 150 HP, 6-pole dc motor with the following dimensions (winding of armature and field need not be shown).
   Armature diameter = 55 cm, Number of slots = 61, Size of slot = 1 × 4.5,
   Slot open type
   Depth bellow slot = 9 cm, Commutator diameter = 42 cm
   No. of commutator bars = 244,
   Air gap length (radial) = 0.5 at main pole and 0.6 at inter pole.
   Main pole laminated, breadth = 14 cm, arc = 20 cm, height with shoe = 21 cm.
   Inter pole breadth = 4 cm, outside diameter of the yoke = 115 cm.
   Shaft diameter at bearing = 10 cm.
   The method of fixing the pole lamination and the pole to the yoke should be clearly shown. Assume any missing data. 25

P.T.O.

PART – B

Answer **any one** question :

4. Draw a suitable scale a half sectional elevation of a salient pole alternator. The rotor pole shoe is made of steel laminations and fixed over the hub by means of stud bolts and the shaft is supported in the end shield bearings. The stator laminations are supported by means of two end plates, which are keyed to the yoke.
   Length of stator = 19 cm
   Inside diameter of the stator = 32 cm
   Outside diameter of the stator = 51 cm
   Stator coil overhang on each side = 10 cm
   Length of yoke = 24 cm
   Overall height of the machine = 61 cm
   Overall length of the machine = 50 cm
   Assume any missing data. **50**

OR

5. a) Draw half sectional end view and a half sectional elevation 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 end ring and core = 0.5 cm,
   Diameter of shaft below rotor core = 3.5 cm, Six vanes are fixed to the rotor end plates to help the cooling. **25**

   b) Draw the full sectional elevation, sectional plan, sectional side elevation of a 3-phase transformer core for the given below dimensions. Show clearly the method of fixing the core and yoke.
   Core, 3-step construction
   Core dia. = 22 cm
   Height of core = 48 cm
   Height of yoke = 25 cm
   Centre to centre distance between the cores = 35 cm. **25**