



Reg. No. : .....

Name : .....

**Seventh Semester B.Tech. Degree Examination, October 2014**  
**(2008 Scheme)**  
**08.705 : ELECTRICAL DRAWING (E)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

Answer **any two** questions.

1. Draw the single line diagram of Generating station switch yard with all equipments and specifications. 25
  
2. Sketch the following :
  - a) 220 KV Double circuit Transmission Tower. 15
  - b) Disc Insulator. 10
  
3. Draw a half sectional elevation of a salient pole alternator of 500 KVA.  
Stator lamination has 24 cm. length and has 5 radial ducts. The stator laminations are held by means of two end plates bolted together.  
Inside dia. of stator – 108.4 cm.  
Outside dia. of stator – 140.4 cm.  
Overhang of stator coil in each side – 16 cm.  
Dia. of rotor – 107.2 cm.  
The shaft is supported by means of two pedestal bearings 160 cm. apart. Other missing data may be assumed. 25



## PART – B

Answer **any one** question.

4. Draw to a suitable scale the end and longitudinal elevation (top half in section) of a 100 kW, 500 volts, 1250 rpm, 6 pole dc shunt generator. The armature is supported over the spider and the shaft is supported by means of pedestal bearing for the dimensions given below.

Dia. of armature – 75 cm.

Length of armature – 27.8 cm.

No. of slots – 86

Size of slots –  $1.11 \times 5.24$  cm.

Depth of iron behind the slot – 9.26 cm.

Ventilating ducts No. 3, each 1 cm wide.

Air gap length below main pole – 0.5 cm.

Main pole :

Breadth – 17.75 cm.

Height – 24 cm with shoe

Length – 25.7 cm.

Inter pole breadth – 4.63 cm; length – 20 cm.

Air gap length below inter pole – 0.8 cm.

Yoke : Thickness of yoke – 7.5 cm.

Length of yoke – 40 cm.

Commutator : No. of commutator segments – 344

Dia. of commutator – 56 cm.

Segment pitch – 0.51 cm.

Length of commutator – 12.35 cm.

No. of brushes per spindle – 3

Shaft :

Shaft dia. below armature – 9 cm.

Shaft length between bearing centres – 120 cm.



5. Draw the half sectional longitudinal and end view of squirrel cage induction motor with the following dimensions.

External diameter of stator stamping – 69 cm.

Inside dia. of stator stampings – 45 cm.

Stator core length – 20 cm.

The stator has 54 slots each of 6 cm.  $\times$  1.5 cm. section and the wiring overhang 5 cm. on each side.

External dia. of rotor stamping – 44.75 cm.

Inside dia. of rotor stamping – 25 cm.

Rotor has 43 slots, each carrying a bar of 1.5  $\times$  1.2 cm. section

The end rings have a section of 0.75  $\times$  3.5 cm.

The rotor is mounted on a spider fixed to the shaft by a key.

Shaft dia. = 5 cm.

Total height of motor = 81 cm.

The motor has ball-bearings carried by the end shield. Assume dim. of the motor frame and other missing data.