CBCS Scheme

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15EE651

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Sixth Semester B.E. Degree Examination, June/July 2019

(ELECTRICAL & ELECTRONICS ENGINEERING)

COMPUTER AIDED ELECTRICAL DRAWING

Time: 3 Hours | Max. Marks: 80

Instruction:

1. **Answer Question 1 or 2 and 3 from PART-A.**
2. **Answer Question 4 or 5 from PART-B.**
3. **Use of CAD tool that satisfies that requirement of the syllabus is permitted. Suitable data may be assumed if not given.**

PART – A

1. Draw the developed winding diagram of a six pole, eighteen armature slots, double layer full pitch, lap wound, DC generator, fix the poles. Draw the sequence diagram. Fix the position and polarity of brushes. Mark the direction of rotation of armature. **(25 marks)**

OR

2. Draw a developed winding diagram for an AC machine having 24 slots, one conductor per slots 4 poles & delta connected. **(25 marks)**

3. Draw the single line diagram of a generating station having 4 alternators running in parallel showing details of the circuit breakers, isolators, bus couplers, transformers which step up voltage from 11KV to 132KV, lightning arrestors etc. **(15 marks)**

PART – B

4. Draw to a suitable scale end view and elevation with top half in section of a DC machine, with the following details:

Yoke:

Outside diameter = 49.6cm
Inner diameter = 40 cm
Axial Length = 16 cm

Main pole:

Number of poles = 4
Total height = 12.6 cm
Width =6 cm
Air gap = 1.6 mm

Interpole :

Number of poles = 4
Total height = 11 cm
Width =9.5 cm
Air gap = 2.5 mm

(40 marks)

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5. Following are the details of 3 phase, core type transformer draw to suitable scale :
   a) Front elevation of transformer assemble showing one limb in section
   b) Plan of transformer assemble showing one limb in section

Core: Cross section of the core= 3 stepped core
Diameter of circumscribing circle = 220 mm
Distance between adjacent core centers = 350 mm
Yoke: Height of the yoke = 250 mm
Height of the core = 480 mm
LV winding: Inside diameter of LV winding = 231 mm
Winding in two layer total radial thickness = 13.3 mm
Radial thickness of one layer = 7.4 mm
Thickness of LV former = 3 mm
Height of LV winding = 427 mm
Number of turns per layer = 13 mm
HV winding: Outside diameter of HV winding = 340 mm
Total number of coils = 12
1. Two coils of end gun metal ring each of 14 mm thick
2. Ten coils of 56 turns each (made from U piece each 3mm thick)

Height of HV winding = 427 mm
Average end clearance 33 mm from top and 20 mm from the bottom of the yoke.

(40 marks)

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