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10EE65

Sixth Semester B.E. Degree Examination, December 2018  
(ELECTRICAL & ELECTRONICS ENGINEERING)

**COMPUTER AIDED ELECTRICAL DRAWING**

Time: 3 hrs

Max. Marks: 100

**Instructions:**

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

**Part A**

1. Draw the developed DC wave winding diagram for the following data **30 Marks**  
Number of slots = 20, Number of poles = 4 Type: single layer simplex wave winding.

**OR**

Draw the developed winding diagram of a AC machine having the following details.

No. of phase = 3

No. of poles = 4

No of slots = 36 mush winding

**30 Marks**

2. Draw the Single line Diagram of a substation having the following **20 Marks**  
equipment.

a) Incoming lines: 11KV, 50 Hz, Two

b) Outgoing lines: 33KV, 50 Hz, Four

c) Transformer: 11/33KV, 3 phase, Y/Δ, Two

d) Bus Bars: 11KV, One

33 KV, Two

Show the positions of CT, PT, Isolating Switches, Lightning arrestors, circuit breakers.

## Part B

3. Following are the details of single phase, shell type transformer draw to suitable scale **50 Marks**

- a) Front elevation of transformer assemble left half in section  
b) Plan of transformer assemble showing left half in section

**Core:** Laminated steel plates of 0.35 mm

Width = 13 cm      Depth = 36cm

**Window:**

Width = 14 cm      Height = 24 cm

Overall height of the transformer = 37 cm

Overall length = 54 cm

Overall depth = 36 cm

**LV winding:**

Total number of coils = 4

Number of turns per coil = 10

Number of turns per layer = 2

Number of layers = 5

Cross section of conductor = 112 sq mm

(4 strips each of 4 mm x 7 mm in parallel)

**HV winding:**

Total number of coils = 4

Number of turns per coil = 48

Number of turns per layer = 4

Number of layers = 12

Cross section of conductor = 24 sq mm

(2 strips each of 2 mm x 6 mm in parallel)

**OR**

4. Draw the end view of the DC Generator with the following data- **50 Marks**

Rating: 10kW, 1200 rpm, 4 pole DC Generator

Shaft radius = 35mm

Armature Radius = 110mm

Inner Radius of the yoke = 168mm

Outer Radius of the yoke = 195mm

Pole width = 65mm

Pole height = 56mm

Pole Arc / Pole pitch = 2/3

Steel rod in the main pole = 40mm X 40mm

Inter pole Dimension = 20 X 52

Armature slot Dimension = 8 X 22

No. of Armature slots = 32

Vent holes in the armature = 6 numbers of 10mm diameter

Axle height = 200mm

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