Sixth Semester B.E. Degree Examination, June/July 2018
Electrical Drawing and CAD

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a.   Draw a neat schematic diagram of a high head hydroelectric plant.   **(10 Marks)**
    b.   Draw the single line diagram of a 33 kV/11 kV substation with the necessary equipments.   **(10 Marks)**

2   Draw to a suitable scale a neat and sectional view of the following as per main dimensions given below in centimeter scale: D.C. motor 6 pole 150 H.P Armature diameter = 55 cm, Air gap length (radial) = 0.5 at main poles, 0.6 at inter poles. Main poles laminated, breadth = 14 cm, pole arc = 20 cm; height with shoe 21 cm, inter pole breadth = 4 cm. Outside diameter of yoke = 115 cm. The method of fining the pole lamination and the pole to the yoke should be clearly shown. Assume any additional data necessary.   **(20 Marks)**

3   Draw the front elevation top half in section of a commutator of a d.c. machine with the following data:
Diameter of commutator = 13 cm
Length of commutator = 11.8 cm
Diameter of shaft = 4 cm
Segment pitch with mica = 0.6 cm
Assume suitable scale and missing data.   **(20 Marks)**

4   Draw with suitable scale the top half sectional end view of the stator of an alternator having the following details:
Diameter of stator box = 18 cm
Outer diameter of stator = 28 cm
External diameter of supporting frame = 38 cm
Total number of stator slots = 36
Assume missing data and suitable diameter of rotor.   **(20 Marks)**

PART – B

5   Design and draw a duplex winding diagram of a DC machine with 32 conductors and 4 poles. Show the direction of induced emf, sequence diagram, and brush position.   **(10 Marks)**
      (10 Marks)

6   Design and draw 4 pole wave winding (progressive) for an armature with 34 conductors accommodated 17 slots, show position of brush, direction of current.   **(20 Marks)**

7   Develop the winding of an induction motor of 5HP, 440 V, 3 phase 1440 rpm, 4 poles and 2 slots/ pole/ phase. Winding is double layer full pitched lap winding. Also show winding in delta connected.   **(20 Marks)**

8 a. Fig.Q8 shows the lap winding of a dc machine. Write prompt and response columns to obtain the winding. **(10 Marks)**
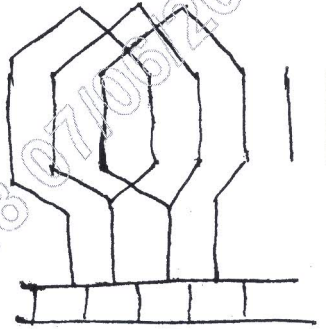

Fig.Q8

b. Draw the preparatory sketch and explain step by step procedure to draw the single line diagram of a 33 kV/11 kV substation using AUTO CAD commands. **(10 Marks)**

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