INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, ROORKEE
Electrical Engineering Department
Subject: Electrical Machines-1 (EEN-201)
B.Tech. II-I Semester
Tutorial – VI
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Q1. For 6 polar D.C machine armature has 36 number of slots and the type of winding is a double layer simplex lap winding.

        a. How many coils are present?
        b. What is the coil span in terms of number of slots?
        c. If each coil has 4 turns, then what is the total number of armature conductors presents?
        d. How many parallel paths will be there in the armature?
        e. Altogether how many brushes will be there?

Q2. For a commutator machine with 6 poles and 40 coils, determine a simplex lap winding:
   a) The number of commutator segments,
   b) Back pitch and front pitch and
   c) Commutator pitch.

Q3. For a commutator machine with 12 coils and 4 poles, design a progressive simplex lap winding with two coil-sides per slot. Draw the winding diagram also

Q4. For 4 pole d.c machine armature winding with a double layer progressive simplex wave winding with 23 number of slots answer the following:

        a How many coils are present?
        b What is the coil span in terms of number of slots?
        c What is commutator pitch in terms of commutator segments?
        d How many coils are there between two consecutive commutator segments?
        e How many parallel paths are present?