CODE: 17CD02102

M. Tech I Year I Semester Supplementary Examinations, May 2018

MACHINE MODELING AND ANALYSIS

(PE & D)

Time : 3 hours Max Marks : 60

Answer all **five** units. (5 x 12 = 60 Marks)

UNIT-I

1. Explain the steady state and transient analysis of the separately excited DC motor?

OR

2. Explain the concept of Linearization Techniques for small perturbations?

UNIT-II

3. (a) Distinguish between Stationary reference frame, Rotor reference frame?

(b) Explain the physical concept of Clarke's and Park's transformations?

OR

4. (a) Distinguish between speed voltages and transform voltages in transformations?

(b) Explain the transformation from rotating axes to stationary axes and vice versa?

UNIT-III

5. Explain the steady state analysis of Induction machine?

OR

6. Draw and explain about the arbitrary reference - frame equivalent circuit of a 3-phase, symmetrical induction machine using voltage equations?

UNIT-IV

7. Explain the dynamic performance of synchronous machine?

OR

8. Derive an expression for the air-gap MMF in a 2-pole, 3-phase, Y-connected salient pole synchronous machine?

UNIT-V

9. Derive the voltage equations and Torque expression for Permanent Magnet Brushless DC Machine?

10. Explain the operating principle of Permanent Magnet Brushless DC Machine?

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