

Total No. of Questions : 8]

[Total No. of Parts : 2

[2]

Roll No

MEPS-105

M.E./M.Tech. I Semester

Examination, November 2019

Advance Course in Electrical Machines

Time : Three Hours

Maximum Marks : 70

- Note:** i) Attempt any Five questions.
 ii) All questions carry equal marks.

1. a) Obtain an expression for the electrical torque of the Kron's primitive machine.
 b) Discuss the modelling of a typical cross field commutator machines based on the concept of generalized theory.
2. a) Discuss the concept of Transformation? And also write its importance from generalized theory point of view.
 b) Discuss the steady state and transient analysis of DC machine and also drive the expression of speed in terms of other parameter, draw its characteristics also.
3. a) Explain the mathematical model of a poly-phase induction motor and develop the equivalent circuit of it from generalized theory concept.
 b) Discuss the dynamic performance during sudden change in load torque and three phase fault at the machine terminal.
4. a) Explain the transformation equation for rotating three phase winding in a synchronous machine.

- b) Discuss the simplified equation of a synchronous machine with two damper coil.
5. a) Explain the various reactances and time constant of a three-phase synchronous machines.
 b) Explain the constructional features of schrage motor. And also discuss the differences between schrage motor and ordinary induction motor.
6. a) Discuss how park's transformations transform equation in a, b, c variables to d, q, o variables.
 b) Derive and explain the voltage equation of a synchronous machine in matrix form.
7. a) Explain the equivalent circuit and vector diagrams for approximate calculation.
 b) What are the approximate method to analyse the problems of generator?
8. Write short notes on any two of the following:
 - a) Analysis of line to line short circuit.
 - b) Dynamic performance of Induction machine during sudden change in load torque.
 - c) Difference between transformer and rotational Emf.
 - d) Operational impedance for a synchronous machine with four rotor winding.
