Roll No. | | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech. (EE)(2022 Batch) (Sem.–2)

DYNAMICS OF ELECTRICAL MACHINES

Subject Code : MTEE-203C-18

M.Code : 76104

Date of Examination : 20-12-22

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1.Attempt any FIVE questions out of EIGHT questions.

2.Each question carries TWELVE marks.

1. Develop the transformed torque matrix of a balanced poly phase induction motor using Kron's machine model. State clearly the assumptions made.

2. Consider a plunger whose inductance varies as- $L(x) = L_0(1- -)^2$. Find the force on the plunger as a function of x when the coil is driven by a controller which produces a current as a function of x of the form- $i(x) = I_0(1- -)^2$A.

3. How is rate of change of flux linkage unitized? Using dq transformation, develop voltage, flux and acceleration equations in per unit form for a three phase symmetrical induction machine in magnetizing current fixed synchronously rotating reference frame.

4. Develop the scalar voltage and flux equations of a three phase symmetrical induction machine choosing rotor reference frame.

5. Develop the stator and rotor voltage and flux equations of a three phase symmetrical induction machine in space vector form.

6. Draw a primitive machine and describe its features using Kron's model.

7. Develop the impedance matrix for a cumulative and long shunt dc compound motor using Kron's model.

8. Obtain the voltage equation of a dc compound motor using Kron's model.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.