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Total No. of Pages : 01

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M.Tech. (EE)(2018 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- $L(x) = L_0(1-(\frac{x}{d}))^2$. 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- $i(x) = I_0(1-(\frac{x}{d}))^2 A$.
- 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.