

Code No. 11/PWE

OR

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY, HYDERABAD
M .Tech. I Semester Supplementary Examinations, March – 2009
MACHINE MODELLING AND ANALYSIS
(Power Electronics)

Time: 3 hours

Max. Marks.60

Answer any Five questions
All questions carry equal marks

1. For a given two pole DC machine develop primitive 2-axis machine circuit model. With necessary assumptions obtain the various voltage equations in state variable form.
2. Starting from fundamentals obtain the state variable form of a D.C. series motor.
3. For a given 3 Ph Induction motor starting from fundamentals obtain the stator end rotor voltages uni matrix form.
4. What do you understand by the term 'Linear transformation' as used in electrical machines? Illustrate your answer with suitable example.
5. For a 3-ph Induction motor derive the stator and rotor voltage expressions in matrix form. Draw its circuit model.
6. Develop the two-axis model for an induction motor. Derive the voltage matrix expressions in stator reference frame.
7. What are the assumptions made for two axis representation of synchronous motor. Derive the expression for self and mutual inductances of stator.
8. For a voltage-fed synchronous motor develop the relevant voltages in state variable form.

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