

Government College of Engineering, Aurangabad

(An Autonomous Institute of Government of Maharashtra)

M. E. (EPS/EMD) FT/PT Examination

End Semester Examination

EE 501: ELECTRICAL MACHINES MODELING AND ANALYSIS

Time Three Hours

28 NOV 2010

Max. Marks : 60

“ Verify the course code and check whether you have got the correct question paper “

Instructions :-

1. Solve any four question 2. Figures to the right indicate full marks

3. Assume suitable data if necessary and state clearly 4. Use of non-programmable calculator is allowed

- Q.1 a) Derive an expression for the air-gap MMF in a 2-pole, 3-phase, Y-connected salient pole synchronous machine (8)
- b) Explain electromechanical energy conversion. Drive the energy balance equation (7)
- Q.2 a) Derive the voltage equation in arbitrary reference for induction machine. (8)
- b) Describe the concept of modeling with help of the voltage and torque equation for D.C machines (7)
- Q.3 a) Explain with block diagram static and dynamic characteristics of DC machines. (8)
- b) Discuss on transformation of a balanced set and balanced steady state phasor relationships.
- Q.4 a) Explain dynamic performance during a Three-Phase Fault at the synchronous machine terminals. (8)
- b) Derive the equations of transformation for Rotor Circuit of induction motor. (7)
- Q.5 a) Analyze of steady state operation of power system stability by equal-area criterion (8)
- b) Drive the transformation matrix for transforming three phase winding to two phase equivalent parameter. (7)
