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

Total No. of Questions : 08

M.Tech.(EE) (Sem.–1)

ADVANCED ELECTRICAL MACHINES

Subject Code : ELE-505

M.Code : 36002

Time : 3 Hrs. **Max. Marks : 100**

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

Q1. a) What is synchronous machine? Give its mathematical model.

b) What is park's transformation? Explain its physical concept and derive equation of performance.

Q2. What do you understand by balanced steady state analysis? Explain the phasor equation and phasor diagrams. Also explain salient pole machine.

Q3. a) What are armature and field transients? Explain.

b) What is transient torque? Explain.

Q4. a) Discuss the synchronous machine design dynamics.

b) What is the difference between linearized and non linearized analysis of synchronous machine? Explain.

Q5. What is transformer? What are multi circuit transformers? Explain the equivalent circuit of multi circuit transformer in detail with neat diagrams. Where they are used?

Q6. What are harmonics? What is the effect of harmonics in single phase transformer and in three phase transformer? What are the disadvantages of harmonics?

Q7. Explain the following :

a) lnrush current phenomenon

b) Effect of using tertiary winding

Q8. Write a note on :

a) Unbalanced operation of three phase transformer.

b) Sudden reactive loading and unloading.

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.