

Code No: **R42024****R10****Set No. 1****IV B.Tech II Semester Supplementary Examinations, April - 2018****SPECIAL ELECTRICAL MACHINES****(Electrical and Electronics Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) Draw and explain the constructional details of a 4-phase switched reluctance motor. Also explain its principle of operation. [10]
b) Define stator pole arc and rotor pole arc. [5]
- 2 a) How are switched reluctance motors different from stepper motors? Explain. [7]
b) Explain the operation of a VR stepper motor. Also mention their applications. [8]
- 3 a) Discuss the similarities and differences between BLDC motors and PMSMs. [7]
b) What are the advantages and applications of PM BLDC motors? Also specify the limitations of permanent magnet machines. [8]
- 4 a) In what way the linear motors are different from conventional motors? Explain the applications of linear motors. [8]
b) Draw and explain the constructional details of a linear induction motor. [7]
- 5 a) What are the advantages and disadvantages of permanent magnet machines? [7]
b) Draw and explain the constructional details of a PM DC motor. [4]
c) Mention the applications of PM DC motors. [4]
- 6 a) Compare between open loop and closed loop systems. [7]
b) With a neat schematic diagram, explain the closed loop control of stepper motors. [8]
- 7 a) What is the need for rotor position sensor in the control of SR motors? Explain. [8]
b) Discuss the control of SR motor for fraction type loads. [7]
- 8 a) What are various motors used as traction drives? Why? [7]
b) Illustrate the application of single sided linear induction motor for traction drives. [8]