



12. a) i) Describe the principle of operation of hybrid stepper motor. (8)
ii) Explain briefly a closed-loop operation system using a microprocessor for a hybrid stepping motor. (8)
(OR)
- b) i) Explain the mechanism of static torque production in a variable reluctance stepping motor. (10)
ii) Describe the dynamic characteristics of a variable reluctance stepper motor. (6)
13. a) Draw the cross sectional view of switched reluctance motor and explain the principle of operation. State the advantages of switched reluctance motor. (10+6)
(OR)
- b) Draw and explain four converter topologies for a 3-phase SRM. Write the merits and demerits of each topology. (16)
14. a) i) Explain the magnetic circuit analysis of permanent magnet brushless DC motor on open-circuit. (10)
ii) Derive the EMF equation of permanent magnet brush less DC motor. (6)
(OR)
- b) i) Draw and explain the general structure of a controller for a permanent magnet brush less DC motor. (8)
ii) Describe the torque/speed curve of the ideal burshless DC motor. (8)
15. a) For an ideal sine wave permanent magnet motor, derive the EMF and Torque equations. (8+8)
(OR)
- b) i) Describe the construction of phasor diagram of surface-magnet sine wave motor. (8)
ii) Explain the torque/speed characteristic of sine wave motor. (8)