

Please check whether you have got the right question paper.

- N.B:
1. Question No. 1 compulsory.
  2. Answer any three from the remaining.
  3. Figures to right indicate full marks.

- Q.1. a)** Is the switched reluctance motors and synchronous machine the same? Explain in brief. **05**
- b)** Explain the purpose of adaptive control in case of IM. **05**
- a)** What is the effect of harmonics during rectification of slip power in WRIM. **05**
- b)** Distinguish between scalar and vector techniques. **05**
- Q.2. a)** Draw the vector control block diagram with rotor flux orientation for IM and derive the equation for the resultant flux from the phasor diagram. **10**
- b)** Derive the current model flux estimation for field oriented control . **10**
- Q.3. a)** Derive the equation of torque for stator flux oriented vector control of Induction motor drive. **10**
- b)** Draw the block diagram and write down the equations illustrating the speed estimation by direct synthesis from state equation. **10**
- Q.4. a)** Explain about the field weakening mode of operation of sinusoidal SPM machine. **10**
- b)** With a pictorial representation explain how the active and reactive powers are distributed in modified scherbius VSCF drive. Draw the necessary diagram. **10**
- Q.5. a)** Explain in detail about the efficiency optimisation control. Draw the relevant diagrams. **10**
- b)** Draw the acceleration and deceleration characteristics on N-T curves of IM with open loop v/f control method. **10**
- Q.6. a)** How can we achieve independent frequency control in case of multiple PM synchronous motors. **10**
- b)** Draw the phasor diagram of syRM and derive the torque equation. **10**

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