

Code No: C8004**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
INDUSTRIAL ELECTRICAL AND ELECTRONICS
(MECHATRONICS)****Time: 3hours****Max. Marks: 60****Answer any five questions
All questions carry equal marks**

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1. Explain the principle of operations and the self excitation requirements of Induction generators. And also mention its applications.
2. Describe the constructional features of switched reluctance motors. Discuss how a three phase 6/4 SRM rotor rotates?
3. Explain in detail the construction, principle of operation and applications of Linear Synchronous machines.
- 4.a) In what respect is an LED is different from an ordinary PN junctions diode? State the applications of LED's.
b) Mention the advantages and applications of LCDs.
- 5.a) Explain in detail the various characteristics of DC & AC Motors.
b) Write about DC power supplies.
- 6.a) Explain the different methods of voltage control of the Induction generators.
b) What is wrapping effect in using the bilinear transformation and how to overcome it?
- 7a) Digital control system is described by its transfer function $G_p(z)=0.05(z+0.5) / (z-0.9)(z-0.8)(z-0.35)$. Design a dead beat controller so that the system output sequence will follow a unit step input in a minimum number of sampling period.
b) Determine z – transform of $F(s) = 4/s^2(s+2)$.
8. Write short notes on the following
 - a) High speed detectors
 - b) PMDC moters
 - c) Applications of Brushless dc motors.
