R09

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

\- - -

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.

****