Code No: B4301 / D4301, D4201, D5401 **NR/R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II Semester Examinations, October 2011
POWER ELECTRONIC CONTROL OF AC DRIVES
(COMMON TO POWER ELECTRONICS, POWER AND INDUSTRIAL DRIVES, POWER ELECTRONICS & ELECTRIC DRIVES)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks
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1.a) Derive the per phase Equivalent circuit of a 3 phase induction motor with the help of phasor diagram. (6M)
b) Explain the Different operating regions of torque speed curve of a 3 phase induction motor. (6M)

2.a) Explain voltage fed current regulated inverter drive with torque and flux control of Induction Motor. (6M)
b) Describe about Efficiency optimization control by flux program of Induction Motor Drive. (6M)

3.a) Derive the AC equivalent circuit of the Static Kramer's drive. (6M)
b) Explain the operation of the static scherbius drive. (6M)

4.a) Discuss the Algorithm for the direct vector control process of an induction motor. (6M)
b) Derive the functional block diagram of a current source indirect vector controller for an Induction Motor Drive. (6M)

5.a) Explain the different control strategies employed for Synchronous motor drive. (6M)
b) Explain the operation of Load commutated inverter fed synchronous motor drive. (6M)

6.a) Briefly explain the Flux weakening operation of synchronous motor drive. (6M)
b) Briefly explain unity power factor control of synchronous motor drive. (6M)

7.a) Briefly discuss constructional details and characteristics of Variable Reluctance motor drives. (6M)
b) Explain the process of Torque production in variable reluctance motor drive. (6M)

8.a) Compare the Half wave and Full wave inverter based PMBLDC with C-dump topology. (6M)
b) Explain the operation of current controlled Brushless dc motor Servo drive. (6M)

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