NR/R09

Code No: B4301 / D4301, D5401

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

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

Answer any five questions
All questions carry equal marks
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1. a) Explain torque production in an induction motor.
   b) Explain induction motor characteristics in constant torque and field weakening regions. [6+6]

2. Explain speed torque characteristics with variable voltage operation, variable frequency operation, constant v/f operation and variable stator current operation. [12]

3. Explain the operation of these phase voltage source inverter fed these induction motor drive with 180^0 conduction with the help of circuit diagram and waveforms. Also sketch speed-torque characteristics for sub-synchronous speeds? [12]

4. Discuss the working of these phase slip-ling induction motor when static Scheribus scheme is employed for its speed control. Draw a neat circuit, speed-torque characteristics and being out salient features of this drive. [12]

5. What is vector control with respect to induction motor? Explain the operation of induction motor when direct method of vector control is adopted. [12]

6. Discuss different control strategies of synchronous motor with reference to its characteristics. [12]

7. Discuss the working of a three-phase BLDC motor drive when fed from voltage source inverter on closed loop operation. Draw neat circuit diagram. [12]

8. Write short notes on:
   i) Variable reluctance motor drive.
   ii) Static Kramer drive. [12]

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