

Code No: 156CJ

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, August - 2022

POWER SEMICONDUCTOR DRIVES
(Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

1. Analyze the speed torque characteristics of different operating modes of a DC series motor when it is supplied by single phase fully controlled converter. [15]
2. Discuss about three phase semi-controlled converters connected to DC separately excited motor and obtain voltage current wave forms. [15]
3. With necessary diagrams explain the operation of single quadrant chopper feeding to a DC separately excited motor and draw the wave forms for continuous current operation. [15]
4. A 220 V, 30 A, 1200 rpm dc separately excited motor has an armature resistance of 6 W is controlled by a chopper. The frequency is 50 Hz and the input voltage is 240 V. Calculate the duty ratio for a motor torque of 2 times rated torque at 800 rpm. [15]
5. With necessary equations, explain variable frequency control of 3-phase induction motor to get the speeds above and below base speed. [15]
6. With neat diagrams, explain the operation of a Cyclo-converter fed 3-phase induction motor. [15]
7. Explain the static Kramer Drive operation for an induction motor with a circuit diagram. [15]
8. Explain about load commutated CSI fed synchronous motor with suitable diagrams. [15]

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