

**Code No: 156CJ****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, August/September - 2021****POWER SEMICONDUCTOR DRIVES****(Electrical and Electronics Engineering)****Time: 3 Hours****Max. Marks: 75**

**Answer any five questions**  
**All questions carry equal marks**

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1. Analyze the motoring and plugging operating modes of a separately excited DC motor when it is supplied by single phase fully controlled converter. [15]
2. Explain the operation of a three-phase fully controlled rectifier fed DC series motor for continuous conduction, also draw the voltage and current waveforms when firing angle is  $30^\circ$ . [15]
3. Discuss about four Quadrant Operation of DC Drives by single phase dual converter. [15]
4. Explain the operation of four quadrant chopper feeding to a DC series motor and draw the wave forms for continuous current operation. [15]
- 5.a) Compare VSI and CSI operations.  
b) Explain the closed loop operation of induction motor drive with block diagrams. [6+9]
6. Explain the operation and control of Induction motor by AC voltage controller. [15]
7. Sketch a suitable diagram and explain the working of slip-power recovery system using Static Scherbus drive. [15]
8. With a suitable diagram explain the closed loop operation of synchronous motor drive. [15]

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