

Code No: 125AF**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, October - 2020****POWER ELECTRONICS****(Electrical and Electronics Engineering)****Time: 2 hours****Max. Marks: 75**

Answer any five questions
All questions carry equal marks

- - -

- 1.a) Give constructional details of a typical thyristor. Sketch its schematic diagram and the circuit symbol.
- b) Discuss the condition which must be satisfied for turning on an SCR with a gate signal. [7+8]
- 2.a) Explain about the principle of operation of UJT firing circuit.
- b) Discuss about the ratings of IGBT. [8+7]
- 3.a) For a single phase one pulse controlled converter system, sketch waveforms for load voltage and load current for RL load.
- b) Write a short notes on forced commutation circuit. [9+6]
- 4.a) Explain the working of 3-phase six pulse converter with a neat diagram.
- b) Write a short notes on dual converters. [9+6]
- 5.a) Discuss the main classification of dc to dc thyristor converters. Which of these is more commonly employed and why?
- b) Describe the principle of AC chopper operation. Derive an expression for its average dc output voltage. [7+8]
6. Explain the ratio control and current limit control strategies used in choppers. [15]
- 7.a) With the help of a neat diagram explain the operation of a bridge type single phase to single phase cycloconverter.
- b) Derive the expression for output voltage of the above cycloconverter. [8+7]
8. Draw the diagram of series inverter and modified series inverter and explain the differences between them. [15]

---ooOoo---