

	<b>BE(ECE) SEMESTER VI</b>	
	<b>Power Electronics</b>	
	<b>EC- 625</b>	
<b>Time: 90min</b>		<b>MM. 30</b>
<b>NOTE:</b>	<b>Attempt any five questions in all, selecting one question from each unit. Unit V is compulsory</b>	
Q1	Compare Power BJT, Power MOSFET and Thyristor.	6
Q2	Explain construction, I-V characteristics and Transient characteristics of IGBT. What is its major advantage over BJT ?	6
Q3	Compare the current and voltage waveform of Half wave controlled rectifier with R and R-L load. What is the use of freewheeling diode? Give the difference between discontinuous mode and continuous mode of operation	6
Q4	The full-wave controlled bridge rectifier has an input of 220 Vrms at 50 Hz and a 20ohm load resistor. The delay angle is 40 degree. Determine i) efficiency ii) form factor iii) ripple factor iv) peak inverse voltage v) average load voltage and load current vi) Draw the well labelled Circuit diagram and waveforms.	6
Q5	i. Define Power Factor. What are the effects of poor power factor? ii. Define the Conduction loss and the Switching loss in power electronic devices. iii. In a power diode rate of fall of current is 5A/μs while $t_{rr}$ reverse recovery time is 10μs. Find the value of charge stored in reverse recovery time and the maximum value of reverse bias current?	2x3