

**Q2 (a) What are the different types of power electronic circuits and explain the principle of AC voltage controller with circuit diagram and input/output waveforms.**

Answer Page Number 12 to 15 of Text Book

**Q2 (b) Draw the circuits of parallel connection using power diodes and explain its significance in power electronics.**

Answer Page Number 31 to 32 of Text Book

**Q3 (a) What is an IGBT? Discuss the cross section and equivalent circuit of IGBT and give its applications.**

Answer Page Number 287 to 289 of Text Book

**Q3 (b) Draw the circuit of UJT triggering circuit and explain its operation with the help of V-I characteristics and waveforms.**

Answer Page Number 120 to 122 of Text Book

**Q4 (a) What is SCR? Explain the construction, operation and V-I characteristics of SCR.**

Answer Page Number 96 to 98 of Text Book

**Q4 (b) List out the types of thyristors and explain briefly the operation of Fast-Switching thyristor.**

Answer Page Number 107 to 108 of Text Book

**Q5 (a) Draw the circuit of Single Phase Controlled Dual Convertor and explain its operation with the help of input and output waveforms.**

Answer Page Number 143 to 145 of Text Book

**Q5 (b) Compare the features of semi-converter, full-converter and dual converter.**

Answer Page Number 130 to 131,133-134,138 & 143-145

**Q6 (a) Draw the circuit of Three Phase Full-Wave Controlled Bridge Rectifier and explain its working.**

Answer Page Number 230- 233 of Text Book

**Q6 (b) List out the industrial applications of Three-phase controlled rectifiers.**

**Answer** Page Number 150,153,158 and 165 of Text Book

**Q7 With the help of circuit diagram and waveforms explain the working of following:-**

**(i) Step-up chopper (ii) Step-down chopper**

**Answer** Page Number 309 to 312 of Text Book

**Q8 (a) Explain Single phase Pulse Width Modulated Inverter with the help of circuit diagram and waveforms.**

**Answer** Page Number 356-362 of Text Book

**Q8 (b) Explain a single phase bridge inverter with circuit diagram and waveforms.**

**Answer** Page Number 232-233 of Text Book

**Q9 (a) What is a Cycloconverter? What are the advantages and disadvantages of Cycloconverters? What are its industrial applications?**

**Answer** Page Number 218-225 & 234 of Text Book

**Q9 (b) Draw the circuit of single-phase tap changer and explain its working with the help of current and voltage waveforms.**

**Answer** Page Number 420 & 421 of Text Book

**Text Book**

**Power Electronics for Technology, First Impression (2006), Ashfaq Ahmed, Purdue University - Calumet, Pearson Education.**