

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.