



**PART – B (5 × 16 = 80 Marks)**

11. (a) Explain the structure, different modes of operation and characteristics of Triac. (16)

**OR**

- (b) Explain the operating principle of a thyristor in terms of the “two transistor analogy”. (16)

12. (a) Explain the operating principle of a single phase full controlled bridge converter. (16)

**OR**

- (b) Explain the operating principle of three phase dual converter with necessary waveforms. (16)

13. (a) Explain the working of Buck-Boost converter with a neat schematic diagram and waveforms and also derive the source voltage and current expression for the same. (16)

**OR**

- (b) Discuss in detail, the voltage commutated chopper. (16)

14. (a) With the neat sketch and output waveforms, explain the operation of three phase bridge inverter in 120 degree mode of operation. (16)

**OR**

- (b) Explain the single phase current source inverter. State the merits and demerits of them. (16)

15. (a) Explain the working of three phase to single phase cycloconverter with neat circuit diagram and necessary waveforms. (16)

**OR**

- (b) Discuss in detail, the operation of single phase full wave A.C. voltage regulator with help of voltage and current waveform for various loads. (16)