

Roll No.

Total Pages : 2

8720

BT-7/DX

POWER ELECTRONICS

Paper-ECE-427E/ECE-429(E)

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt any *five* questions, selecting at least *one* question from each unit.

UNIT-I

1. (a) State the problems that can arise in parallel operation of SCRs & then state the ways to circumvent these problems/problematic issues. 12
- (b) Describe protection circuits/schemes for SCRs. 8
2. Describe the construction & operation of SCR. On its characteristics, certain portion is marked generally dotted. What does it imply ? Can this dotted portion be traversed both ways, i.e., for increasing voltage & for decreasing voltage ? Justify your answer. 20

UNIT-II

3. (a) Distinguish between continuous and discontinuous modes of operation of converter. 7
- (b) Describe Power factor improvement techniques. 13
4. Draw the circuit, describe the operation and draw all relevant waveforms of a half-controlled converter. Also derive the output voltage equation. 20

UNIT-III

5. Draw the circuit & explain with waveforms the 120° mode of operation of inverter. What is its difference from 180° mode ? 20
6. Describe R series inverter and state its limitations. 20

UNIT-IV

7. Clearly state the operation of four-quadrant chopper. How is the output voltage controlled ? Draw all illustrating waveshapes. 20
8. Discuss a non-circulating type cycloconverter. 20