

Assignment on thyristor protection.

- ① Explain the characteristics of a fuse for fast current control in SCR protection.
- ② A three phase, six pulse thyristor converter is having the ac input supply of 400V at 50 Hz. Taking a factor of safety of 2, calculate the PIV of the device.
- ③ A thyristor has a current of 200A while dv/dt capability is 60 V/μsec. A three phase six pulse converter ckt is fabricated with thyristor. If the ckt inductance being 0.15 mH, design a snubber ckt.
- ④ Discuss the selection of R in snubber ckt resistance.
- ⑤ Explain the operation of snubber ckt in protecting a thyristor.
- ⑥ Following are the specification of a thyristor operation from peak supply of 440 volts.
 - (i) Repetitive peak current (I_{pk}) = 200A
 - (ii) $dv/dt|_{max} = 110 \text{ V/μsec}$
 - (iii) $di/dt|_{max} = 20 \text{ A/μsec}$

Design a snubber ckt taking a factor of safety 2, if the load resistance is 15 Ω.

- ⑦ Why protection of thyristors are needed? What are the basic reasons of faults to be encountered by a thyristor.
- ⑧ Write short notes on
 - (i) Triac protection.
 - (ii) GTO protection.
 - (iii) MOSFET protection.