

Subject Code: H4304/R13

M. Tech –II Semester Regular/ Supply Examinations, October, 2015

CUSTOM POWER DEVICES

(Common to PE, P&ID, PE&ED, PE&D, EM&D and PE&PS)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions

All questions carry EQUAL marks

- 1 a) Define and explain flicker, impulse, spike and swell.
b) What are harmonics? Discuss the effect of voltage harmonics on electrical machines.
- 2 a) Define Power Quality.
b) Explain in detail the Super Conducting Magnetic Energy Storage systems.
- 3 List and explain different types of multilevel inverters. Draw and explain the schematic diagram of a five-level cascaded H-bridge inverter.
- 4 With a neat schematic diagram and operating characteristics, explain the operation of a FC-TCR type var compensator.
- 5 What are the advantages of static var compensators? Discuss the operation of Static Series Compensators.
- 6 a) What is hybrid source transfer switch? Explain its operation.
b) What are the advantages of solid state current limiters compared to conventional current limiters? Discuss.
- 7 a) What is the need for current limiter? Discuss the operation of a Solid state current limiter.
b) What is the need for Interline Power Flow Controller (IPFC)? Explain its operation.
- 8 a) Draw and explain the schematic diagram of a shunt UPQC.
b) How UPQC protects the load from harmonic voltages? Discuss.
