

Duration 3hrs

Total Marks 80

NB: 1) Question No. 1 is Compulsory.

2) Attempt any three Questions out of remaining five Questions.

3) Assume suitable data if necessary and justify the same.

Q1. Answer any four of the following questions

- A) Distinguish between power outages and interruptions **05**
- B) State objectives of shunt compensator **05**
- C) Explain different causes of voltage and current harmonics. **05**
- D) Explain series connection of active filter. **05**

Q2 A) Comment how harmonics affect the rotating machines **10**

Q2 B) Explain need of transmission line interconnection. Also explains factors limiting the transmission line loading capacity. **10**

Q3 A) Classify in detail the power filter used for harmonic elimination and explain any one with advantages and disadvantages, **10**

Q3 A) Enlist common power quality issues. Explain any five of them. **10**

Q4 A) Explain various basic FACTS controllers on the basis of their connection with needful diagram. Give One example in each categories. **10**

Q4 B) Explain the operating principle of the Thyristor Controlled Reactor (TCR) in detail. **10**

Q5 A) Explain the Thyristor controlled phase angle regulator (TCPAR). **10**

Q5 B) With the neat phasor diagram explain power factor compensation using capacitor. **10**

Q6 A) Explain switching converter type series compensation (SSSC). **10**

Q6 B) Explain Switching converter type VAR generator. Explain its basic operating principal **10**
