

Time: 3 hour

Max. Marks: 80

- N.B. :** (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- Que. 1** Attempt any four of the following:- (05-Marks each) [20]
 a Explain is Load compensation, state its objectives.
 b Explain objectives of voltage and phase angle regulator.
 c What are the objectives of Series compensation?
 d Explain the variable impedance type series compensation (TSSC).
 e Explain power factor correction in a single phase system.
 f Write a short note on the ideal load compensator.
- Que. 2** a Explain midpoint voltage regulation of line segmentation. [10]
 b Explain the factors that limit the loading capability of a transmission line. [10]
- Que. 3** a Explain the load compensator as a phase balancing of unsymmetrical load. [10]
 b Derive approximate formula for voltage regulation using short circuit level. [10]
- Que. 4** a Explain switching converter type series compensator SSSC. [10]
 b Explain voltage and current characteristics of TCR and TCR with a fixed capacitor. [10]
- Que. 5** a Compare HVDC with FACTS. [10]
 b Explain the Thyristor controlled phase angle regulator (TCPAR). [10]
- Que. 6** a What is meant by reactive power biasing? Explain with V_Q characteristics. [10]
 b Explain the basic operating principle of Unified Power Flow Controller (UPFC) with relevant diagrams. [10]
