

(3 Hours)

[Total Marks: 80]

N.B.:-

1. Question No. 1 is compulsory.
2. Solve any **three** questions out of remaining **five** questions.
3. Each question is for **20 Marks**.
4. Assume suitable data if necessary.

Q.1

- A) Explain the basic types of facts controller.
- B) What are the objectives of series compensation?
- C) Explain the importance of Unified Power Flow Controller (UPFC).
- D) What is load compensator? State its objectives.

Q.2

- A) Explain the load compensation as a phase balancing of unsymmetrical load.
- B) Explain the Thyristor Controlled Reactor (TCR) in detail & condition to obtain Thyristor Switched Reactor (TSR) from TCR.

Q.3

- A) Explain Thyristor Controlled Voltage Regulator (TCVR).
- B) Explain the Unified Power Flow Controller (UPFC) with its phasor diagram.

Q.4

- A) What is meant by reactive power biasing? Explain with V-Q characteristics.
- B) Draw the ideal compensator characteristics and explain i) Knee point voltage, V_k , ii) Compensated gain, K_r , iii) Max of rated reactive power, Q_r Max and iv) Stiff system.

Q.5

- A) Explain switching converter type series compensation (SSSC).
- B) Explain the Thyristor Controlled Phase Angle Regulator (TCPAR).

Q.6

- A) Explain power factor correction in a single phase system.
 - B) Explain the various parameters which limit the loading capabilities of transmission line.
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