



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Electrical and Electronics Engineering

Semester End Examination; June - 2017

Flexible AC Transmission System

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. What are the benefits from FACTS technology and also the necessity of transmission interconnection? 10
- b. Explain the basic types of FACTS controllers. 10
- 2 a. Explain the power flow and dynamic stability consideration of transmission interconnection. 10
- b. Explain the power flow in a meshed system. 10

UNIT - II

- 3 a. Explain the basic concept of voltage source converter and a single value operation. 10
- b. With the help of a circuit diagram and waveforms, explain single phase full wave bridge converter operation. 10
- 4 a. Explain the square wave voltage harmonics for a single phase bridge type voltage sourced converter. 10
- b. Explain the converter operation of a 3 phase full wave bridge converter. 10

UNIT - III

- 5 a. Explain 3 phase full wave diode rectifier operation neglecting commutation angle. 10
- b. Explain the three principal types of current source converter. 10
- 6 a. Explain CSC with turn off devices. 10
- b. Compare CSC with VSC. 10

UNIT - IV

- 7 a. Briefly explain any two objectives of shunt compensation. 10
- b. Explain how transient stability can be enhanced by SVC and STATCOM? 10
- 8 a. Compare STATCOM and SVC based on : 10
- i) V-I characteristic ii) Real power unchange.
- b. Write brief note on : 10
- i) Power oscillation damping by reactive shunt compensation
- ii) Improvement of transient stability.

UNIT - V

- 9 a. Explain the concept of series capacitive compensation for a 2 machine power system along with its phasor diagram and power angle circuit diagram. 10
- b. Explain the operation of TCSC with the help of schematic diagram and impedance characteristics. 10
- 10a. Explain the operation of Thyristor Switched Series Capacitor (TSSC). 10
- b. Explain the objectives of series compensation briefly. 10

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