

B.Tech IV Year I Semester (R13) Supplementary Examinations June 2017

FLEXIBLE AC TRANSMISSION SYSTEMS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Define any one FACTS series controller.
 - Discuss role of thermal limit for transmission line.
 - What is pulse width modulation? Define amplitude modulation index.
 - How many switches are required in a two level converter?
 - How to compensate reactive power in a transmission line.
 - How to vary impedance of a transmission line using shunt controller.
 - Can you improve transient stability of a transmission system using FACTS controllers?
 - Define power damping oscillation.
 - What is shunt compensation?
 - Explain which parameters can be varied using series compensation.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Discuss FACTS controller effects on loading capability limits and dynamic stability limits.
- 3 Explain power flow in parallel lines and discuss stability considerations in a transmission system.

UNIT – II

- 4 Draw and explain working of 24 pulse converter with transformer connections.
- 5 Explain working of three level voltage source converter with circuit diagram and i/o waveforms.

UNIT – III

- 6 (a) With a neat sketch, explain working of STATCOM with its characteristics.
(b) What are the objectives of shunt compensation?

OR

- 7 (a) With a neat sketch, explain working of SVC with its characteristics.
(b) Compare STATCOM with SVC.

UNIT – IV

- 8 (a) With a neat sketch, explain working of TCSC with its characteristics.
(b) Comment on the Control range and Rating of SSSC.

OR

- 9 (a) With a neat sketch, explain working of TSSC with its characteristics.
(b) Analyze the capability of TCSC in damping the power oscillations in a power system.

UNIT – V

- 10 With a neat sketch, explain working of IPFC with its characteristics.
- 11 With a neat sketch, explain working of UPSC with its characteristics.
