

Code No: RT42023C

R13**Set No. 1**

IV B.Tech II Semester Supplementary Examinations, July/August - 2017
FLEXIBLE ALTERNATING CURRENT TRANSMISSION SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B**Answer ALL sub questions from Part-A**Answer any THREE questions from Part-B*

PART-A (22 Marks)

1. a) What are the factors which limit loading capability? [4]
- b) What is the principle of current source converter? [3]
- c) What is mid-point voltage regulation with respect to shunt compensation? [3]
- d) Draw the V-I characteristic of the SVC and the STATCOM. [4]
- e) Draw basic Thyristor-Switched Series Capacitor scheme and represent its parameters. [4]
- f) What is the basic operating principle of unified power flow controller? [4]

PART-B (3x16 = 48 Marks)

2. a) Discuss the benefits of FACTS controllers. [8]
- b) Briefly discuss the requirement and characteristics of high power devices. [8]
3. a) With a neat schematic diagram, explain the operation of single-phase full bridge converter. [8]
- b) Discuss the basic concept of voltage sourced converter with circuit diagram. [8]
4. a) Discuss how to prevent voltage instability at the end of line by using shunt compensation. [8]
- b) Explain the working and characteristic of Thyristor Controlled Reactor. [8]
5. a) Briefly describe the way by which the transient stability is enhanced with static VAR compensator. [8]
- b) Explain the operation of STATCOM with an aid of block diagram. [8]
6. Explain the voltage stability enhancement and power oscillation damping with series capacitive compensation. [16]
7. Briefly discuss the IPFC with necessary diagrams and its characteristics. [16]