

**IV B.Tech II Semester Regular/Supplementary Examinations, July - 2021**  
**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 FOUR questions from Part-B***\*\*\*\*\***

**PART-A (14 Marks)**

1. a) What are the characteristics of high power devices? [3]
- b) Write the types of current source converters. [3]
- c) What is transient stability? [2]
- d) What is STATCOM? [2]
- e) Draw a neat circuit diagram of TCSC. [2]
- f) Write the applications of Transmission lines? [2]

**PART-B (4x14 = 56 Marks)**

2. a) What are the major issues in AC power transmission and explain how they addressed using FACTS devices. [7]
- b) Explain how the power can control in high power transmission systems. [7]
3. a) Explain the basic operation of current sourced converter with neat circuit diagram. [7]
- b) Derive the expression for the fundamental and harmonic components of the ac voltage three phase bridge converters. [7]
4. a) Write in brief, for a radial line, why the end of the line is the best location for compensators. [7]
- b) Explain the power oscillating damping limiting mitigations. [7]
5. a) Explain the operating V-I characteristics of SVC and STATCOM. [7]
- b) Define and differentiate TCR and TSR with their V-I characteristics. [7]
6. a) Explain with a neat circuit diagram of thyristor switched series capacitor. [7]
- b) Explain the voltage stability enhancement with series capacitive compensation. [7]
7. a) Discuss the basic operation of UPFC with necessary diagrams. [7]
- b) Explain the characteristics and implementation of UPFC. [7]