

H.T.No. 

--	--	--	--	--	--	--	--	--	--

Code No: EE1541

GEC-R14

IV B. Tech I Semester Regular Examinations, November 2017

**FLEXIBLE AC TRANSMISSION SYSTEMS**

(Electrical and Electronics Engineering)

Time: 3 Hours

Max. Marks: 60

**Note:** All Questions from **PART-A** are to be answered at one place.  
Answer any **FOUR** questions from **PART-B**. All Questions carry equal Marks.

**PART-A**

**6 × 2 = 12M**

1. List out any two benefits to a power transmission system from FACTS controllers.
2. Show with a neat diagram transformer connections to obtain the 24 pulse converter.
3. Draw the operating V-I area of the voltage sourced converter type VAR generator.
4. How regulation slope can be defined in terms of capacitive and inductive currents, inductive and capacitive voltages?
5. What is the degree of series compensation and what is its significance?
6. Draw the block diagram of two machine power system with a phase angle regulator.

**PART-B**

**4 × 12 = 48M**

1. a) What is the need for transmission interconnection? Explain. (4M)  
b) “Injecting a voltage in to transmission line perpendicular to the line current mostly changes the active power”. Justify with the help of phasor diagram. (8M)
2. a) Explain different configurations of current source converters. (7M)  
b) Write the comparison between Current Source Converters and Voltage Source Converters. (5M)
3. Discuss how to improve the transient stability by using shunt compensation. (12M)
4. Analyze the transient stability enhancement by VSC and STATCOM done by increasing the temporarily midpoint voltage. (12M)
5. Analyze functional internal control scheme for TCSC based on synchronization to fundamental component of line current. (12M)
6. Give circuit diagram, wave forms and detailed analysis of a continuously controllable thyristor tap changer. (12M)

\*\*\*\*\*