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**B.TECH.**  
**(SEM VII) THEORY EXAMINATION 2020-21**  
**FLEXIBLE AC TRANSMISSION SYSTEMS**

**Time: 3 Hours****Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

a.	How FACTS technology opens up new opportunities for controlling power?
b.	Why harmonic elimination is required?
c.	What is a PWM converter?
d.	What is phase locked loop(PLL)?
e.	What is the application of internal control scheme for the TCSC.
f.	Write the application of SSSC.
g.	What is the function of switching converter type VAR generators?
h.	Write the different components used in TSC.
i.	What are the compensator requirements?
j.	Write the objectives of shunt compensation.

**SECTION B****2. Attempt any three of the following:****10x3=30**

a.	Explain in detail the basic types of FACTS controllers.
b.	Describe the objective of shunt compensation.
c.	Explain the switching converter type series compensators.
d.	Describe the objectives of series compensation.
e.	Explain the basic concept of voltage sourced converters.

**SECTION C****3. Attempt any one part of the following:****10x1=10**

a.	Explain in detail the benefits from FACTS technology.
b.	Explain the basic operating principle of unified power flow controller(UFPC)

**4. Attempt any one part of the following:****10x1=10**

a.	Explain the advantage of slope in dynamic characteristics of SVC.
b.	Describe the improvement of transient stability by ideal midpoint compensation.

**5. Attempt any one part of the following:****10x1=10**

a.	Explain impedance vs. delay angle char characteristics of the Thyristor controlled series capacitor.
b.	Explain the basic Thyristor controlled series capacitor scheme.

**6. Attempt any one part of the following:****10x1=10**

a.	What do you mean by power oscillation damping ? Explain it.
b.	Describe the concept of series capacitive compensation.

**7. Attempt any one part of the following:****10x1=10**

a.	Describe the working principle and VI characteristics of static synchronous compensator(STATCOM)
b.	Explain the operation and control range of static synchronous series compensator(SSSC).