B.E. (Electrical Engineering (Electronics & Power)) Seventh Semester (C.B.S.)

Elective - I : Flexible AC Transmission Systems

P. Pages : 2 **TKN/KS/16/7550**

Time : Three Hours *1040* Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Assume suitable data whenever necessary.
9. Diagrams and chemical equations should be given whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) What limits the loading capability of a Transmission line? **6**

b) Compare HVDC and FACTS. **7**

OR

2. a) What are the benefits of FACTS Technology? **6**

b) Derive the equation of active and reactive power flow in a simple two machine system. **7**

3. a) Explain the working of six pulse voltage source converter by suitable diagram and waveforms. **8**

b) Compare voltage and current sourced converter. **6**

OR

4. a) Explain in brief about pulse width modulation converter with suitable diagrams. **7**

b) What do you mean by 12 pulse operation of a three phase VSC? Give the transformer connection for 12 pulse & 24 pulse operation. **7**

5. a) Explain the objectives of shunt compensation. **6**

b) Explain the operation of FC-TCR type static var generator giving its V-I and loss characteristics. **7**

OR

6. a) Explain STAT COM. **7**

b) Compare SVC and STAT COM. **6**

7.	a)	Explain the concept of series compensation.	**6**
	b)	Explain GTO-Thyristor controlled series controller (GCSC) and explain nozo it is dual of TCR.	**8**

OR

8.	a)	Explain TCSC with neat sketch and waveforms.	**7**
	b)	Explain static series synchronous converter (SSSC)	**7**
9.	a)	Explain voltage and phase angle regulator.	**6**
	b)	Explain Hybrid phase Angle Regulator.	**7**

OR

10.	a)	Explain Thyristor Tap changer with Discrete level control.	**7**
	b)	Explain Thyristor controlled voltage and phase Angle Regular (TCVR)	**6**
11.	a)	Explain unified power flow controller (UPFC)	**7**
	b)	Explain Sub Synchronous Resonance i.e. SSR.	**6**

OR

12.	a)	Write short note on IPFC.	**7**
	b)	Explain Thyristor controlled braking resister (TCBR).	**6**

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