

**B.Tech. – VIEP – ELECTRICAL ENGINEERING
(BTELVI)**

Term-End Examination

00309

December, 2017

BIEEE-008 : FLEXIBLE AC TRANSMISSION SYSTEM

Time : 3 hours

Maximum Marks : 70

Note : Attempt **five** questions in all. All questions carry equal marks. Use of scientific calculator is permitted.

1. (a) Explain various reasons for variation of voltage in a power system and suggest methods to improve it. 7
- (b) Write various objectives of FACTS compensators. Mention the problems associated with uncompensated lines also. 7
2. (a) What are the factors affecting the “line loading capability” of transmission lines ? 7
- (b) Differentiate between ‘Shunt’ and ‘Series’ compensation techniques in detail. 7

3. (a) How can 'transient free switching' be achieved in the operation of Thyristor Switched Capacitor (TSC) ? 7
- (b) What are the control strategies for TCR ? Explain in brief with suitable block diagrams. 7
4. (a) How can the multiple number of lines be compensated by Interline Power Flow Controller (IPFC) ? 7
- (b) Discuss the operation and control of STATCOM. 7
5. (a) Explain Unified Power Flow Control (UPFC) and discuss all its functional capabilities. 7
- (b) Draw and explain the V – I operating curve of TCR. 7
6. (a) Discuss the operation of Thyristor Controlled Braking Resistor (TCBR) and its importance. 7
- (b) Discuss the 'reactive power dispatching strategy' to improve power quality. 7
7. Write short notes on any *two* of the following : $2 \times 7 = 14$
- (a) Static Series Synchronous Controller (SSSC)
- (b) Back-up Energy Supply Devices
- (c) Thyristor Controlled Voltage Regulator (TCVR)