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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (EE) / (Electrical &amp; Electronics) (2012 Onwards E-I) (Sem.-6)

**FLEXIBLE AC TRANSMISSION SYSTEMS**

Subject Code : BTEE-605B

M.Code : 71153

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Answer the following in short :**

1. What are the roles of the FACTS devices?
2. How FACTS controllers are classified?
3. What is the limitation of VSC model for modeling the FACTS devices?
4. What is Static Phase Shifter?
5. Out of series and shunt compensation methods of same MVA rating, which one is more effective in stability enhancement in a power system network? Justify your answer.
6. Why VSCs is preferred over CSCs in FACTS devices?
7. What is Reactive Power Compensation?
8. What are the different kinds of filters available? What is the role of filters?
9. What is Congestion Management?
10. Explain difference between series and shunt compensation?

**SECTION-B**

11. Draw the block diagram of STATCOM, and explain its working.
12. Explain the basis of Shunt Compensation. Discuss the principle of operation, working and characteristics of a shunt SVC scheme. What are the various SVC schemes?
13. What is a UPFC? Explain its working and applications with the help of a schematic diagram. Why is it considered the most powerful FACTS device? Derive the relevant results to support your answer.
14. Explain with the help of single-line and phasor diagrams for the power flow and dynamic stability considerations of a transmission line.
15. What are the sources of voltage and current harmonics in a power system network? Which type of FACTS and/or custom power device would you use to mitigate current and/or voltage harmonics?

**SECTION-C**

16. Explain the term Series Compensation. Draw the schematic diagram of TCSC. Discuss its principle of operation. Explain the working, characteristics and applications of TCSC in detail.
17. What are the various FACTS devices used in a power system network? What are the limitations of conventional compensating devices? How is the role of FACTS devices different in transmission system as compared to that in distribution system?
18. What is the role of compensation in power system? Explain the importance of load compensation and line compensation.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**