Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE / Electrical & Electronics) (2011 Onwards E-I) (Sem.–6)

FLEXIBLE AC TRANSMISSION SYSTEMS

Subject Code : BTEE-605B

Paper ID : [A2340]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION 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

1) Answer the following in short :

a) What are the limitations of conventional compensating devices?

b) How is TSC different from TCR?

c) Differentiate between: SSSC and TCSC.

d) How are DC filters different from AC filters?

e) A 200 MVA load with power factor of 0.8 is connected to the power system network. What is the rating of capacitor required to improve its power factor to 0.92?

f) What are non-characteristic harmonics?

g) What do you understand by the term 'Congestion Management'?

h) What are the various energy storage devices that can be used in STATCOM?

i) Enumerate the various operating modes of TCSC.

j) What are the sources of RI noise?

SECTION-B

2) Prove that steady state power limit gets doubled if the magnitude of receiving end voltage is maintained constant. Also, state the assumptions made.

3) What are SVC systems? Describe the SVC schemes commonly used in EHV/UHV transmission. Also, write their applications.

4) Explain the design procedure of DC filters.

5) Discuss the working and applications of SSSC. Explain, with the help of block diagram.

6) Draw the block diagram of UPFC. Discuss its principle of operation. Explain the working, characteristics and applications of UPFC.

SECTION-C

7) Explain the objectives of Phase shifter. How is SPS superior compared to conventional phase shifter? Discuss the operating characteristics of SPS and also derive its steady state model. Also, explain the power current configuration of SPS.

8) a) How are FACTS devices useful for congestion management?

   b) Discuss the classification of compensation devices that can be used in a power system network.

9) Write short notes on the following :

   a) STATCOM

   b) Static VAR Systems