

B.E. [Electrical] SEM - VIII CBSGS

20/05/2019

(3 Hours)

[Total Marks - 80]



1. Question No.1 is Compulsory
2. Answer any three out of remaining five questions
3. Assume any suitable data wherever necessary and justify the same
4. Illustrate answer with sketches wherever required

Q1. Answer all questions

- a. State five comparisons between SVC and STATCOM 05
- b. Write a short note on ideal load compensator? 05
- c. What are the objectives of series compensation? 05
- d. Explain in brief the basic types of FACTS controllers? 05

- Q2 a. Show that voltage sensitivity for load reactive power is  $\frac{dv}{dq} = \frac{-E/SSC}{1+kr^{(E/SSC)}}$  10
- b. Explain the shunt compensation by synchronous voltage source with the help of necessary diagram 10

- Q3 a. Explain in detail the methods of improving power factor in single phase AC system 10
- b. Explain variable impedance type series compensation (TSSC). 10

- Q4 a. Explain the Fixed Capacitor Thyristor controlled Reactor (FC-TCR) in detail along with operating VI characteristics 10
- b. Explain the Thyristor Controlled Phase Angle Regulator (TCPAR). 10

- Q5 a. Explain power flow through mesh transmission line with suitable example in details 10
- b. Explain switching converter type series compensation (SSSC) 10

- Q6 a. Explain the operating principle of Unified Power Flow Controller (UPFC) with relevant diagrams 10
- b. Explain the Thyristor Controlled Reactor (TCR) in detail & state the condition to obtain Thyristor Switched Reactor (TSR) from it 10