

M. Tech
M. G. Prasad

Date: 10/01/2014.

Seat No: _____

GANPAT UNIVERSITY
M. TECH SEM. 1st ELECTRICAL ENGINEERING
REGULAR EXAMINATION NOV-DEC 2013
3EE106: FLEXIBLE AC TRANSMISSION SYSTEMS

TIME:-3 HOURS

TOTAL MARKS-70

- INSTRUCTION:-
1. Attempt all questions.
 2. Make suitable assumptions wherever necessary.
 3. Figures to the right indicate full marks.

Section-I

- Que-1 (a) Discuss principle of operation and V-I characteristics of STATCOM using suitable power circuit diagram. (06)
(b) Discuss the advantages of FACTS controllers over the conventional controller. (06)

OR

- Que-1 (a) Explain configuration & operating characteristics of Saturated reactor. (06)
(b) Prove that, for a given compensation, the reactive power rating of series compensator is much less than that of shunt compensator. (06)

- Que-2 (a) Explain operating characteristics of TCR with & without voltage control. (06)
(b) Discuss the role of SVC as a voltage controller. (05)

OR

- Que-2 (a) Explain the working of Six Pulse converter used in FACTS devices. Draw the circuit diagram (06)
(b) Derive the expression for real and reactive power flow (P_{12} and Q_{12}) through a transmission line having reactance X when sending end and receiving end voltage are given. (05)

- Que-3 (a) Explain Thyristor switched capacitor. (04)
(b) List The advantages of SVC over SC (synchronous condenser). (04)
(c) Give Comparison of various SVC's (04)

Section-II

- Que-4 (a) Explain the principle of TCSC with the help of schematic, practical model & operating regions. (06)
(b) Discuss the application of SSSC as a reactive power controller. Draw and discuss the necessary control circuit. (06)

OR

- Que-4 (a) Explain Characteristics of Thyristor Controlled Series Capacitor. (06)
(b) Prove that mid point compensation can almost double the power transmission capacity of a transmission line. (06)

- Que-5 (a) Discuss the application of UPFC in power system steady state stability enhancement. (06)
(b) Discuss the application of IPFC in power systems. (05)

OR

- Que-5 (a) Explain the construction and working of IPFC. (06)
(b) Explain the construction and working of Unified Power Flow Controller (UPFC). (05)

- Que-6 (a) Compare the working of TCSC with SSSC. (04)
(b) Explain Influence of the SVC on the System Voltage. (04)
(c) Describe Thyristor Controlled Transformer with its various arrangements. (04)

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