

Code No: B5404 / D5404, D5607, D6408, D4904, D4303, D4204

NR/R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech II - Semester Examinations, October/November 2011

FLEXIBLE AC TRANSMISSION SYSTEMS

(COMMON TO POWER ELECTRONICS & ELECTRIC DRIVES, POWER SYSTEMS HIGH VOLTAGE, POWER ENGINEERING & ENERGY SYSTEMS, ELECTRICAL POWER ENGINEERING, POWER ELECTRONICS, POWER AND INDUSTRIAL DRIVES)

Time: 3hours

Max. Marks: 60

**Answer any five questions
All questions carry equal marks**

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1. a) What limits the loading capability of transmission lines? Explain.
b) Explain the basic types of FACTS controllers give an example for each type. [12]
2. a) Derive the fundamental and harmonics voltages for a three phase bridge converter.
b) Explain the single phase full wave bridge voltage source converter. [12]
3. a) Contrast and compare between current source converter and voltage source converter.
b) Explain transformer connections for 12 pulse operation of voltage source converter. [12]
4. a) Discuss how to improve the transient stability by using shunt compensation.
b) Explain midpoint voltage regulation with static shunt compensation. [12]
5. Briefly discuss the variable impedance type static VAR generator. [12]
6. a) Explain the basic concept of series capacitor compensation.
b) Describe the operating point control of static series compensation with neat block diagram. [12]
7. a) Discuss the effect of static series compensation on power oscillation damping.
b) Explain the thyristor controlled series capacitor. [12]
8. Write short notes on the following
a) Importance of controllable parameters in transmission system
b) Objectives of shunt compensation. [12]
