Code No. B4303 **NR**

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY, HYDERABAD
M .Tech. II Semester Supplementary Examinations, March – 2009
FLEXIBLE AC TRANSMISSION SYSTEMS
(Common to Power Electronics & Electric Drives, Power Electronics, Electrical Power Engineering, Power Engineering & Energy Systems and Power Systems (High Voltage))

Time: 3 hours **Max. Marks.60**

Answer any Five questions
All questions carry equal marks

1.a) What are the loading capability limitations? Explain how they can limit the loading capability?
b) Explain relative importance of controllable parameters.

2.a) Explain transformer connections for 12-pulse operation.
b) Explain operation of three-phase full wave bridge converter?

3.a) Explain operation of PWM converter with wave forms.
b) Explain basic concept of current sourced converter.

4.a) What are the objectives of shunt compensation? Explain how shunt compensation is used for voltage regulation at the midpoint to segment the transmission line?
b) Explain, how shunt compensation will increase the transient stability?

5.a) Explain the operation of Thyristor-controlled reactor?
b) Explain the Hybrid VAR generation with their operating V-I areas.

6.a) What is the regulation slope? What are the reasons for regulation slope? Explain with V-I characteristics of the SVC and STATCOM?
b) Derive transfer function and explain dynamic performance of Static VAR compensation.

7.a) Explain the concept of series capacitive compensation?
b) Explain, how series compensation is used for improvement of transient stability?

8.a) Explain control schemes for GSC and TCSC.
b) Explain the operation of GTO Thyristor-controlled series capacitor.

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