Code No: D5607, D4904, D4303, D5404 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech II - Semester Examinations, March/April 2011

FLEXIBLE AC TRANSMISSION SYSTEMS

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

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

Answer any five questions

All questions carry equal marks

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1. What are the constraint that limits the power flow and discuss the ways to overcome these limits. What are the benefits from the FACTS controllers? [12]

2. a) Explain the transformer connections for a 12-pulse operation of a voltage source converter.

   b) What are the advantages and disadvantages of current sourced converters over voltage sourced converters. [6+6]

3. Explain the operation of 3-level voltage sourced converter in detail. [12]

4. Explain the necessity of short compensation from the view point of
   i. Midpoint voltage regulation
   ii. Prevention of voltage in stability
   iii. Improvement of transient stability. [12]

5. Explain the different methods of controllable VAR generation. And also discuss about hybrid VAR generators. [12]

6. Discuss the concept of series capacitive compensation in transmission line. What is its impact on a power system? [12]

7. Discuss the principle of operation and the characteristics of a thyristor controlled reactor. [12]

8. Write notes on the following.
   i) STATCOM
   ii) TCSC. [12]

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