R09

Code No: C4902

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

HIGH VOLTAGE DC TRANSMISSION

(ELECTRICAL POWER ENGINEERING)

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

Answer any five questions

All questions carry equal marks

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1. a) Compare different performance aspects of HVDC transmission over the EHVAC transmission.
   b) Draw schematic diagrams of HVDC links and explain the functions of elements in it. [12]

2. Derive equations for average voltage and current of three phase, six pulse Greatz circuit in terms of ignition delay angle and extinction angle confine to overlap greater than 60^0. [12]

3. a) Explain what are the different special features of the converter transformer.
   b) What are the different types of AC and DC filters? Discuss how they are used? [12]

4. a) Explain in detail the IPC and EPC modes of control of firing angle. What are the advantages of EPC scheme over other method?
   b) Explain how power is reversed in HVDC link. [12]

5. a) Briefly explain what are the different harmonic instability problems.
   b) Explain the DC power modulation scheme used in interconnected operations of AC and DC systems. [12]

6. Discuss different types of MTDC systems and explain the control scheme in any one MTDC system. [12]

7. a) Briefly explain over current protection scheme in the HVDC system.
   b) Briefly describe the various faults that occur in converter station? Explain. [12]

8. Write a short note on the following
   a) Commutation failure
   b) Surge arresters
   c) Transient over voltages [12]

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