

Code No: C4305, C6402, C5603

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I - SEMESTER EXAMINATIONS APRIL/MAY-2012
HIGH VOLTAGE DC TRANSMISSION
(COMMON TO POWER ELECTRONICS, POWER ENGINEERING & ENERGY
SYSTEMS, POWER SYSTEMS (HIGH VOLTAGE))

Time: 3hours

Max.Marks:60

Answer any five questions
All questions carry equal marks

- 1.a) Compare the power transfer capacities of AC and DC transmission systems when an existing AC line is converted into DC line.
- b) Discuss briefly about types of HVDC systems.
- 2.a) Derive the expression for average dc voltage of a 6 pulse bridge converter feeding DC motor load.
- b) What are the advantages of Graetz's Circuit over other six pulse converters?
- 3.a) With steady state equivalent circuit, explain the operation of Two terminal DC link.
- b) Explain the effect of source inductance in HVDC system.
- 4.a) Explain in detail about reactive power requirement in HVDC converters.
- b) Briefly discuss the sources of reactive power in HVDC systems.
- 5.a) Classify the solution methodology for AC-DC load flow and explain.
- b) Briefly discuss about per unit system for dc quantities in AC/DC systems.
- 6.a) How do you protect HVDC systems against over voltages?
- b) Explain the role of smoothing reactors in protection of converter circuits.
- 7.a) Distinguish between characteristic and non-characteristic harmonics.
- b) List out the adverse effects of Harmonics.
- 8.a) Discuss various types of AC filters employed in HVDC systems.
- b) Discuss in detail about the design of high pass filter.