

HVDC

(3 Hours)

[Total Marks : 80]

- NB:** 1) Question No. 1 is compulsory.
2) Attempt any three questions out of remaining questions.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

1. Solve any four :- 20
(a) Compare IPC and EPC schemes of converter firing angle control.
(b) Explain current margin.
(c) Explain caused of effects of Harmonics in HVDC system.
(d) What is the necessity of DC reactor in HVDC?
(e) What are the advantages of HVDC transmission?
2. (a) What are the main component HVDC transmission? 10
(b) Derive equivalent circuit of 6 pulse bridge converter. 10
3. (a) Explain with neat diagram and waveforms the principle of 12 pulse converter. 10
(b) Explain protection against over-voltages and over currents. 10
4. (a) Explain two methods of EPC (Equidistance Pulse Control). 10
(b) Explain commutation failure. 10
5. (a) Explain means of reducing characteristics and non-characteristics harmonics on ac as well as dc side of HVDC. 10
(b) Explain basic control characteristics of HVDC also explain actual control characteristics with modification. 10
6. (a) Explain different types of faults in HVDC link. 10
(b) Explain with neat diagram 4 waveform principle of 12 pulse converter. 10
