

9/11/13.

--	--	--	--	--	--	--	--

B.E./B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2013

ELECTRICAL AND ELECTRONICS ENGINEERING

41

SEMESTER VI – (REGULATIONS 2008)

EE 9045 – HIGH VOLTAGE DIRECT CURRENT TRANSMISSION

Time:3 hrs

Max Marks:100

Answer ALL Questions

Part A – (10×2=20)

1. State the significance of break-even distance
2. What is meant by GTO?
3. Define pulse number
4. What is the importance of PIV?
5. Define current margin
6. What is CIA? Explain
7. Explain the causes for harmonics generation in HVDC link?
8. Distinguish between characteristic and non-characteristic harmonics.
9. What is meant by parity simulator?
10. Name any one software used for simulation of HVDC systems.

Part B – (5×16=80)

11. (i) Discuss various types of HVDC links, with suitable diagrams. (8)
(ii) Describe the merits and demerits of HVAC and HVDC systems. (8)
12. a. Derive the expression for average DC output voltage obtained from a Graetz circuit. Assume all switches are ideal, firing angle 30 degrees and load is inductive. Draw suitable waveforms also. (16)

OR

b. Explain the operation of twelve pulse converter with suitable waveform of output voltage. Derive necessary equations and discuss its advantages over six pulse converter. (16)
13. a. Draw the equivalent circuit of a monopolar HVDC link and describe the methods of controlling power in HVDC link. Derive suitable equations also. (16)

OR

b. Discuss the two types of firing angle control, used for generation of converter firing pulses. (16)

14.a. Design a single tuned filter and show the generalized impedance curve of tuned filter. (16)

OR

b. Derive the expression for minimum cost of a tuned filter and show the variation of cost and size of filter graphically. (16)

15.a.(i) Mention the advantages and disadvantages of digital dynamic simulation. (6)

(ii) How will you model a HVDC system for digital dynamic simulation? (10)

OR

b. (i) What are the requirements of good simulation tool? (6)

(ii) Write short notes on HVDC Simulator. (10)