B.E./B.Tech (FULL TIME) DEGREE EXAMINATION APRIL/MAY 2011

39

Electrical and Electronics Engineering

VI Semester

EE 520 HVDC Transmission

Time: 3 Hrs **Max.Marks:100**

Answer All Questions

PART A (10 X 2 = 20)

1. State the reasons for using negative polarity in monopolar HVDC link.
2. List out any four HVDC links in India.
3. What is the effect of lower pulse number?
4. Define commutation.
5. What is meant by firing angle control?
6. What is the principle of DC link control?
7. What are the various types of filters used in AC and DC side?
8. What are the techniques to be adopted for suppression of RI noise?
9. What is the need for simulation of HVDC systems?
10. What is digital dynamic simulation?

PART B (5 X 16 = 80)

11.a.i. State the main reasons for implementing HVDC transmission and mention the limitations of such systems. (10)

ii. Draw a typical HVDC layout and explain their basic components. (6)

12.a.i. Explain the working and characteristics of twelve pulse converter. (10)

ii. Explain the operation of Graetz circuit with the help of a neat circuit diagram and waveforms. (6)

(OR)

12.b.i. List the conditions for selecting converter configurations. (4)

ii. Derive the equivalent circuits of rectifier and inverter and draw their characteristics. (12)

[P.T.O]

13.a.i. Explain in detail about the converter control characteristics of HVDC link. (10)

ii. What is the necessity of 'VDCOL' (Voltage Dependent Current Order Limiter) control in a HVDC link and draw its characteristics. (6)

(OR)

13.b. What are the requirements of extinction angle control? Explain the operation of starting and stopping of DC link in detail. (16)

14.a. Explain the general design procedure for double tuned AC filter in a HVDC link. (16)

(OR)

14 b.i. Explain about the generation of harmonics in a HVDC link. (8)

ii. Write short notes about the effects of radio interference noise in a HVDC link. (8)

15.a. Explain in detail about the different types of philosophy and tools available for HVDC link simulation. (16)

(OR)

15.b. What is simulation? Explain the modelling of HVDC systems for digital dynamic simulation. (16)

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