

Register Number:

M.E DEGREE EXAMINATIONS: JUNE 2013

Second Semester

POWER ELECTRONICS AND DRIVES

PED554: High Voltage Direct Current Transmission

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. What are the different types of HVDC links?
2. What is meant by short circuit ratio? What is the significance of it?
3. How do you define pulse number?
4. What are the advantages of twelve pulse converters than six pulse converters?
5. What are the functions of higher level controllers?
6. What are the requirements for firing pulse generation of HVDC valves?
7. How do you define Telephone harmonic form factor?
8. What are the causes of harmonics?
9. What are the advantages of digital simulation?
10. What is the use of EMTP?

PART B (5 x 16 = 80 Marks)

11. a) Discuss in detail about the relative merits of HVDC over HVAC transmission system.

(OR)

- b) With neat schematic diagram, describe the major components of HVDC transmission system.

12. a) Explain how the converter configuration selected for HVDC transmission system.

(OR)

- b) Explain in detail about the characteristics of twelve pulse converter with the help different modes of operation

13. a) Explain the principle of constant ignition angle control and constant extinction

angle control strategies of HVDC converters.

(OR)

b) Explain the procedures adopted for energization and deenergization of DC link.

14. a) Write short notes on

(i) Non-characteristic Harmonics

(ii) PLC/RI filter

(OR)

b) Explain the different types of AC filters used in HVDC system with its impedance characteristics for reduction of current harmonics.

15. a) Explain how HVDC systems are modeled for digital dynamic simulation.

(OR)

b) Explain the different tools employed for simulation of HVDC systems.
