Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 82179

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Elective

Power Systems Engineering

PS 9275/PS 975/10233 PSE 52 — HIGH VOLTAGE DIRECT CURRENT TRANSMISSION

(Common to M.E. Power Electronics and Drives, M.E. High Voltage Engineering and M.E. Power Management)

(Regulation 2009/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State some disadvantages of DC transmission.

2. Define MTDC.

3. How a HVDC valve must be designed to withstand over voltage protection?

4. Is it possible to have feedback control of power in a DC link? Why?

5. List some faults that can occur in converters.

6. What is the role of smoothing reactor in a DC link?

7. Can we extend the two terminal systems to multi terminal system?

8. The detection of DC link faults gets complicated in a mesh system. Discuss.

9. List some essentials of power flow analysis.

10. Write some tools that can be employed for the simulation of dynamic system.

PART B — (5 × 16 = 80 marks)

11. (a) List some modern trends in DC transmission system. (16)

Or

(b) Discuss in detail the comparisons of AC and DC transmission. (16)

12. (a) With the help of 5 modes, explain the characteristics of a twelve pulse converter. (16)

Or

(b) Explain equidistant pulse control (EPC) in detail. And discuss its drawback. (16)

13. (a) Discuss the different types of MTDC system with a neat diagram. (16)

Or

(b) In case of failure in communication system, how you will control and protect the MTDC system? (16)

14. (a) With a neat flowchart explain the solution of AC-DC power flow analysis. (16)

Or

(b) Discuss in detail the modeling of DC-links. (16)

15. (a) List some problems that can be studied using DC simulator. (16)

Or

(b) Discuss in detail the modeling of HVDC system for digital dynamic simulation. (16)

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