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

Question Paper Code: 92051

M.E. DEGREE EXAMINATION, MAY 2014.

Elective

Power Electronics and Drives

01PPE503 - HVDC SYSTEMS AND CONTROL

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. List the applications of DC transmission system.
2. Why bipolar links are most commonly used?
3. Define pulse number.
4. List the drawbacks of Equidistant Pulse Control (EPC).
5. What are the applications of MTDC systems?
6. List out the typical problems that have been considered for the study of MTDC systems.
7. State the assumptions for DC load flow.
8. Define base resistance of a converter.
9. List the requirements of a good simulation tool.
10. What are the tools that can be employed for the simulation of a dynamic system?

PART - B (5 x 14 = 70 Marks)

11. (a) Compare AC and DC transmission system in terms of economic, technical and reliability aspects. (14)

Or

(b) Explain in detail the major components of HVDC transmission system. (14)

12. (a) Explain the simplified analysis of Graetz circuit without overlap method. (14)

Or

(b) Discuss in detail the control characteristics of converter. (14)

13. (a) Discuss about the series and parallel MTDC system and also list its advantages and disadvantages. (14)

Or

(b) Explain the current margin control method and two ACR control method for MTDC systems. (14)

14. (a) Write short notes on modelling of DC links. (14)

Or

(b) With a neat flow chart, explain the solution methodology for AC and DC power flow. (14)

15. (a) Explain in detail the model of HVDC Simulator with relevant diagram. (14)

Or

(b) Discuss the modelling of HVDC systems for Digital Dynamic simulation. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) Discuss the modern trends employed in DC transmission system. (10)

Or

(b) Briefly explain the detailed analysis of converters. (10)

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