CRASH COURSE

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10EE751

Seventh Semester B.E. Degree Examination, May 2017
H.V.D.C. Transmission

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Describe the historical sketch of HVDC transmission. **(08 Marks)**

b. With relevant figures, explain the types of DC links and HVDC converter station. **(12 Marks)**

2 a. Explain the constitution of EHV-AC and DC links. **(12 Marks)**

b. Mention the applications and advantages of HVDC transmission. **(08 Marks)**

3 a. Define pulse number and explain the concept of pulse number. **(08 Marks)**

b. Explain three phase bridge rectifier circuit with relevant waveforms. **(12 Marks)**

4 a. What are the assumptions made in converter circuits? **(03 Marks)**

b. Mention the "choice of best circuit for HVDC converters" and its advantages. **(07 Marks)**

c. Compare single phase full wave and single phase bridge circuit with respect to currents, voltages, VA, number of valves. **(10 Marks)**

PART – B

5 a. A graetz bridge operates with a delay angle of 15°. The leakage reactance of the transformer is 10Ω. The line to line AC voltage is 85kV. Compute the overlap angle and DC voltage for i) $I_d = 2000A$; ii) $I_d = 4500A$. **(12 Marks)**

b. Describe the complete characteristics of rectifier. **(08 Marks)**

6 a. Explain the form of grid pulse. **(08 Marks)**

b. Describe the desired features of control. **(04 Marks)**

c. Describe the schematic diagram of constant current regulator. **(08 Marks)**

7 a. What are the drawbacks of IPC and EPC schemes? **(06 Marks)**

b. Describe the actual control characteristics and combined characteristics of rectifier and inverter. **(14 Marks)**

8 a. Explain the purposes of DC reactors. **(04 Marks)**

b. Explain in detail of current oscillations and anode dampers. **(12 Marks)**

c. Explain Re-energization of d. c. line. **(04 Marks)**

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