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8E1814

Roll No. \_\_\_\_\_

Total No. of Pages: **2****8E1814****B. Tech. VIII - Sem. (Main/Back) Exam., June - 2023****Electrical Engineering****8EE4-11 HVDC Transmission System****Time: 3 Hours****Maximum Marks: 120****Min. Passing Marks: 42***Instructions to Candidates:**Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five from Part C.**Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.**Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)*1. NIL2. NIL**PART – A****[10×2=20]****(Answer should be given up to 25 words only)****All questions are compulsory**

- Q.1 What do you mean by control Hierarchy?
- Q.2 What is extinction angle control?
- Q.3 What is Mono-polar operation?
- Q.4 What is Reactive Power Control?
- Q.5 Why are smoothing reactors used?
- Q.6 Write effect commutation overlap.
- Q.7 Write main difference between synchronous and asynchronous links.

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- Q.8 What is modular multi-level converters?
- Q.9 Write modern trends in HVDC Technology.
- Q.10 Write effect of commutation failure.

### **PART – B**

**[5×8=40]**

**(Analytical/Problem solving questions)**

**Attempt any five questions**

- Q.1 Describe components of a HVDC system.
- Q.2 Define two and three-level VSCs in detail.
- Q.3 Discuss the voltages Stability related problem in AC/DC systems.
- Q.4 Explain series and parallel MTDC systems using LCCs.
- Q.5 Enlighten the filters in LCC HVDC system.
- Q.6 Deliberate the link control in a LCC and VSC HVDC system.
- Q.7 Describe the six pulse converter in the reference of Line Commutated Converters (LCCs).

### **PART – C**

**[4×15=60]**

**(Descriptive/Analytical/Problem Solving/Design Questions)**

**Attempt any four questions**

- Q.1 Compare the AC and DC Transmission by taking the Economics, Technical and Reliability parameters.
- Q.2 Discuss Multi-Terminal and Multi-infeed systems in detail.
- Q.3 Describe the Power System Angular, Voltage and Frequency Stability.
- Q.4 Differentiate the DC line faults in LCC and VSC systems.
- Q.5 Analyze the six pulse voltage source converter in detail.
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