Q.P. Code: 19EE2125 **R19**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

M.Tech II Year I Semester Regular Examinations January 2021

HVDC TRANSMISSION SYSTEMS

(Power Electronics)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Give the comparison between AC and DC Transmission and explain the factors in detail.	6M
	b	What are the applications of DC Transmission and also mention the modern trends in HVDC technology?	6M

OR

2	a	Explain the line commutated converter based systems.	6M
	b	Explain the basic conversion principles with neat circuit diagrams.	6M

UNIT-II

3	a	Explain the rectifier and inverter operation of a power converter and also write the equivalent circuit of converter.	6M
	b	Derive the expressions for average dc voltage, AC current and reactive power absorbed by the converter.	6M

OR

4	a	Explain the Effect of Commutation Failure, Misfire and Current Extinction in LCC links.	6M
	b	Explain the Sinusoidal Pulse Width Modulation.	6M

UNIT-III

5	a	Explain the Principles of Link Control in a LCC HVDC system.	6M
	b	Give detailed explanation of about two firing angle controls.	6M

OR

6	a	Explain Higher level Controllers Power control, Frequency Control.	6M
	b	Explain the Stability Controllers, Reactive Power Control.	6M

UNIT-IV

7	a	What is meant by DC Power modulation? Explain it in detail?	6M
	b	Briefly explain what are the different harmonic instability problems?	6M

OR

8	a	Explain the DC power modulation scheme used in interconnected operations of AC and DC Systems.	6M
	b	Explain the interaction between HVAC & DC systems.	6M

UNIT-V

9	a	List out different types of multi-terminal DC links with suitable diagrams.	6M
	b	Explain parallel connected multi terminal DC link with suitable diagram.	6M

OR

10	a	Explain series parallel connected multi terminal DC link with suitable diagram.	6M
	b	Explain series connected multi terminal DC link with suitable diagram.	6M

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