Question Paper Code: R18A41EE01

R18

ANURAG Engineering College

(An Autonomous Institution)

IV B.Tech I Semester Regular/Supplementary Examinations, Dec-2024

HVDC TRANSMISSION

(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours **Max.Marks:75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	List the types of HVDC links.	CO1	L2	2M
2.	State the merits of HVDC transmission over EHVAC transmission.	CO1	L2	3M
3.	What are the assumptions are made to simplify the analysis of Graetz circuit with overlap angle?	CO2	L2	2M
4.	Distinguish between delay in firing angle and extinction angle of an HVDC converter.	CO2	L2	3M
5.	What are the merits of per unit quantities?	CO3	L2	2M
6.	What is the need of solution of DC load flow?	CO3	L2	3M
7.	Write a short note on space charge field	CO4	L2	2M
8.	What are the various types of Converter faults?	CO4	L2	3M
9.	Enumerate causes for harmonics in HVDC System	CO5	L2	3M
10.	List the different types of AC filters?	CO5	L2	2M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	Compare AC and DC transmission in detail with reference to: i) Economics ii) Technical performance iii) Reliability	CO1	L2	10M
	OR			
B)	Explain the different types of DC links with necessary diagrams and list out its merits and demerits.	CO1	L3	10M
12. A)	Give the choice of Converter configurations for 6 pulse HVDC converter and compare them.	CO2	L2	10M
	OR			
B)	Explain in detail the significance of constant extinction angle control	CO2	L2	10M
13. A)	Explain about different sources of reactive power to meet the reactive power requirement of Converters.	CO3	L3	10M
	OR			
B)	Obtain the mathematical models of a DC network and DC converter including converter controller.	CO3	L2	10M
14. A	What are the different types of faults that can occur in HVDC systems? Discuss their nature and occurrence.	CO4	L3	10M
	OR			
B)	Explain the smoothing reactors with necessary diagrams and expressions	CO4	L2	10M
15. A)	Compare characteristics and non-characteristic harmonics.	CO5	L3	10M
	OR			
B)	What are the different types of filters used in HVDC converter station? Explain their objectives and design aspects.	CO5	L3	10M