

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**QUESTION BANK**

**COURSE TITLE : HVDC TRANSMISSION**

**COURSE CODE : 23EE705**

**REGULATION : R23**

S.No.	UNIT-IV: Converter Faults and Protection	BT	CO	PO
	<b>Short Answer Questions</b>	<b>BT</b>	<b>CO</b>	<b>PO</b>
1	What are converter faults in an HVDC system?	BT1	CO4	PO1
2	List the common types of faults that occur in converter stations.	BT1	CO4	PO1
3	What is meant by overcurrent protection in HVDC systems?	BT1	CO4	PO1
4	Why is overvoltage protection necessary in converter stations?	BT2	CO4	PO1
5	What is the function of a surge arrester in an HVDC system?	BT1	CO4	PO1
6	Define a smoothing reactor and state its purpose.	BT1	CO4	PO1
7	What is a DC circuit breaker (DC breaker)?	BT1	CO4	PO1
8	What is audible noise in HVDC transmission lines?	BT1	CO4	PO1
9	Define corona effect in DC transmission lines.	BT1	CO4	PO1
10	What is radio interference and how is it caused in HVDC systems?	BT2	CO4	PO1
	<b>Long Answer Questions</b>			
11	Explain the various converter faults encountered in HVDC transmission systems and discuss their causes and effects.	BT4	CO4	PO2
12	Describe the protection schemes employed against overcurrent in converter stations. Explain the operation of protective devices used.	BT4	CO4	PO2

13	Explain the causes of overvoltages in HVDC systems and discuss the methods used for overvoltage protection.	BT4	CO4	PO2
14	Describe the construction, operation, and characteristics of surge arresters used in HVDC converter stations.	BT2	CO4	PO1
15	Explain the function and importance of smoothing reactors in HVDC transmission systems. Discuss their advantages and limitations.	BT4	CO4	PO2
16	Discuss the need for DC breakers in HVDC systems. Explain the operating principles and challenges involved in interrupting DC currents.	BT4	CO4	PO2
17	Explain the phenomenon of audible noise in HVDC transmission lines. Discuss the factors affecting its generation and methods of reduction.	BT4	CO4	PO3
18	What is the space charge field in HVDC transmission? Explain its formation and influence on electric field distribution around conductors.	BT4	CO4	PO2
19	Discuss corona effects on DC transmission lines. Explain the factors affecting corona formation and its impact on system performance.	BT4	CO4	PO3
20	Explain the causes, effects, and mitigation techniques of radio interference in HVDC transmission systems. Compare radio interference levels in AC and DC transmission lines.	BT4	CO4	PO2