Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 80008

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
Seventh Semester
Electrical and Electronics Engineering
U19EEV11 - HVDC TRANSMISSION SYSTEM
(Regulation 2019)

Time: Three Hours Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Tell any two advantages of HVDC Transmission.	2	K1	CO1
2.	Classify different types of HVDC Links.	2	K2	CO1
3.	Name the types of active Filters.	2	K1	CO2
4.	Infer characteristics and non-characteristic harmonics.	2	K2	CO2
5.	Identify the important circuit parameters which control power in HVDC links.	2	K3	CO3
6.	Define Voltage Stability.	2	K1	CO3
7.	Recall the main types of faults in converter.	2	K1	CO4
8.	Illustrate the working principle of DC Breaker.	2	K2	CO4
9.	Summarize the features of Voltage Source Converter (VSC).	2	K2	CO5
10.	Name any two practical HVDC links location in India.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	List out different components of point-to-point HVDC link and draw schematic arrangement.	13	K1	CO1

		(OR)			
	b)	Define Reliability. Explain HVDC system reliability.	3 +10	K2	CO1
12.	a)	With neat sketches explain how a Converter transformer is responsible for generation of Harmonics and suggest various methods for minimizing them.	8 + 5	K2	CO2
		(OR)			
	b)	Draw the schematic diagram of a 12-pulse converter. What are different conduction modes of the converter?	8 + 5	K1	CO2
13.	a)	Analyse constant excitation angle control. Examine the parameters that should be taken into account while designing the above controller.	8 + 5	K4	CO3
		(OR)			
	b)	Mention various modes of operation of HVDC Converter and explain the necessity of each mode in operating a HVDC link.	8+5	K3	CO3
14.	a)	What is insulation co-ordination in HVDC System? Explain the choice of different insulation levels.	8 + 5	K4	CO4
		(OR)			
	b)	Construct the protection schemes for the i. DC line over-current protection and ii. Valve and bridge group protection.	8 + 5	K6	CO4
15.	a)	Explain operation of Voltage Source converter Based 800-kV HVDC link.	13	K5	CO5
		(OR)			
	b)	What is Wind Farm? Discuss the technology is used? Predict the possibility to connect Wind Farm to HVDC System.	5 +5 +3	K6	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Illustrate interactions between AC and DC systems? Interpret the reasons for the interaction.	8 + 5	K2	CO3
		(OR)			
	b)	Outline and explain different characteristics of Converter / inverter of HVDC system?	15	K2	CO1