Hall Ticket Number :										

R-19

Code: 19B23BT

M.Tech. III Semester Regular & Supplementary Examinations March 2023

Flexible AC Transmission Systems

(Electrical Power Systems)

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain different dynamic stability considerations that were taken for a transmission interconnection.	6M	1	L3
	b)	What are FACT controllers and explain different categories of FACT controllers.	6M	1	L2
		OR			
2.	a)	List and discuss different types of FACTS controllers. Give examples for each type and mention their applications.	6M	1	L1
	b)	What are the different kinds of limitations loading capability? Explain how to limit the loading capability?	6M	1	L2
		UNIT–II			
3.	a)	With a neat circuit diagram and necessary waveforms, discuss the working of a single-phase bridge converter.	6M	1	L3
	b)	What are the advantages and disadvantages of current source converter over voltage source converter?	6M	2	L1
		OR			
4.	a)	Explain the transformer connections for a 12-pulse operation of a voltage source converter.	6M	2	L3
	b)	Differentiate between voltage sourced and current sourced converters. Also mention the applications of voltage sourced converters.	6M	2	L2
		UNIT–III			
5.	a)	Discuss how end of line voltage support improves voltage stability in radial lines.	6M	2	L3
	b)	What are the methods of controllable VAR generation? With a neat schematic and waveforms, discuss the working of thyristor switched reactor.	6M	2	L2
		OR			
6.	a)	Explain the principle of midpoint voltage regulation of a transmission line.	6M	2	L3
	b)	Explain the power oscillation damping with shunt compensation.	6M	2	L3
		UNIT–IV			
7.	a)	Explain how it improves voltage stability and provides power oscillation damping.	6M	3	L2
	b)	Discuss the working of a GTO thyristor-controlled Series Capacitor (GSC).	6M	3	L2
		OR			
8.		Explain the working of thyristor-controlled series capacitor (TCSC). Draw and discuss their V-I operating characteristics in voltage control mode and reactance control mode. Also discuss the applications of TCSC.	12M	3	L3
		UNIT–V			
9.	a)	What is a STATCOM? Discuss its advantages and applications.	6M	4	L1
	b)	What is the advantage of regulation slope control? Draw and explain the control scheme for STATCOM with regulation slope control.	6M	4	L2
		OR			
10.		Describe the transfer function and dynamic performance of SVC and STATCOM with necessary diagrams.	12M	4	L3

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Hall Ticket Number :										

R-19

Code: 19B13ET

M.Tech. III Semester Regular & Supplementary Examinations March 2023

Industrial Safety

(Common to SE & EPS)

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

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			Marks	CO	BL
		UNIT–I			
1.	a)	What are the types of mechanical and electrical hazards in an industrial setting? Describe the causes and preventive measures that can be taken to control these hazards.	6M	CO1	L1
	b)	What are the salient points of the Factories Act 1948 with respect to health and safety? Explain how it ensures that the workplaces are safe and healthy for the workers.	6M	CO1	L2
		OR			
2.	a)	What are the safety color codes used in industries? Explain how these codes help in identifying the potential hazards and ensuring safety.	6M	CO1	L1
	b)	What are the different types of fires that can occur in an industrial setting? Explain the equipment and methods used for fire prevention and firefighting.	6M	CO1	L2
		UNIT–II			
3.		What are the different types of maintenance? Describe each type with examples and explain when each type is used in an industrial setting.	12M	CO2	L2
		OR			
4.	a)	How is maintenance cost related to replacement economy?	6M	CO2	L2
	b)	Explain the concept of service life of equipment and how it impacts maintenance costs.	6M	CO2	L2
		UNIT–III			
5.		Explain the causes and effects of wear in industrial settings. How can wear be reduced using different methods?	12M	CO3	L3
		OR			
6.		What are the different methods used for corrosion prevention? Explain how each method works and its applications in industrial settings.	12M	CO3	L3
		UNIT–IV			
7.		Explain the concept of decision tree and how it is used for fault tracing. Provide examples of its need and applications.	12M	CO4	L3
		OR			
8.		How can fault tracing be used to diagnose and resolve problems in industrial boiler?	12M	CO4	L3
		UNIT–V			
9.		What is periodic inspection and why is it necessary for maintaining industrial equipment? Explain the degreasing, cleaning, and repairing schemes used for periodic inspection, and provide examples of when each scheme is used.	12M	CO5	L3
		OR			
10.		What is preventive maintenance and why is it important in industrial settings? Describe the steps and advantages of preventive maintenance and provide its application in Diesel generating (DG) sets.	12M	CO5	L3

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