Hall Ticket Number :										

R-19

Code: 19A252T

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Power Electronics

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Describe the UJT triggering circuit with neat sketch.	7M	1	2
	b)	Discuss series connection of SCRs.	7M	1	2
		OR			
2.		Discuss the different modes of operation of thyristor with the help of its static V-I characteristics.	14M	1	3
		UNIT–II			
3.		Explain briefly the specifications and ratings of SCRs.	14M	2	2
		OR			
4.	a)	Explain briefly over current protection by fast acting current limiting fuse.	7M	2	4
	b)	Show the improvement of dv/dt rating with the help of cathode short structure.	7M	2	4
		UNIT–III			
5.		Describe the operation of three phase semi converter with R load and also draw the output voltage waveforms	14M	3	2
		OR			
6.		Draw and explain the three phase bridge type 6 pulse converter with 'RL' load with neat circuit diagram and necessary wave forms also derive Average output voltage.	14M	3	3
		UNIT–IV			
7.		Explain the operation of step up chopper and derive an expression for its output voltage	14M	4	2
		OR			
8.		Analyze the four quadrant operation of chopper for continuous current conduction mode with neat circuit diagram.	14M	4	4
		UNIT–V			
9.		Differentiate CSI and VSI.	14M	5	2
		OR			
10.		Demonstrate the working of a single phase full bridge inverter supplying RL load with relevant circuit and waveforms.	14M	5	3

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R-19

Code: 19A253T

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Power Systems Analysis

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	BL
		UNIT–I			
1.	a)	What are the different elements in the power system network?	7M	1	2
	b)	What is partial network explain with an example.	7M	1	2
		OR			
2.		Explain the procedural steps to calculate bus admittance matrix by direct inspection method.	14M	1	2
		UNIT–II			
3.		Explain with a neat flowchart the Gauss seidel method with and without PV buses.	14M	2	2
		OR			
4.	a)	Explain fast decoupled load flow method and write the algorithm	7M	2	2
	b)	Explain different types of buses in power systems. What are the quantities specified and to be computed for each type during load flow solution.	7M	2	2
		UNIT–III			
5.		Derive the expression for sequence components of fault currents for L-L-G fault at the terminals of an unloaded generator. How the sequence networks are connected to represent the fault.	14M	3	1
		OR			
6.	a)	Explain the different types of series reactors.	7M	3	2
	b)	Explain the selection of circuit breakers	7M	3	2
		UNIT–IV			
7.	a)	List out the assumptions used in deriving power angle equation.	4M	4	1
	b)	Derive the expression for maximum steady state power.	10M	4	1
		OR			
8.		Define the terms: Stability, steady state stability limit, transfer reactance, synchronizing power coefficient.	14M	4	2
		UNIT–V			
9.	a)	Explain the methods to improve transient stability.	6M	5	2
	b)	Explain the point-by-point method of solving the swing equation. Compare this method with equal area criterion method	8M	5	2
		OR			
10.	a)	With the help of necessary expressions, explain the procedure of solving swing equation by step-by-step algorithm. List out the assumptions made.	8M	5	2
	b)	Differentiate steady state and transient state stabilities.	6M	5	2

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Hall Ticket Number :										

R-19

Code: 19A251T

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Electrical and Electronic Measurements

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	BL
		UNIT–I			
1.	a)	Elucidate the different errors possible in an instrument	10M	1	L2
	b)	Explain the classification of an analog instrument with an example	4M	1	L2
		OR			
2.		Describe the construction and working of Dynamometer type instrument along with neat diagram. Also derive the expression for torque	14M	1	L2
		UNIT–II			
3.		What are the different methods of connections in wattmeter and explain them in detail. Also suggest which method of connection is best and why	14M	2	L1
		OR			
4.	a)	Explain the construction and working of single phase induction type energy meter along with a neat diagram	10M	2	L2
	b)	Explain about Creeping error in single phase induction type energy meter	4M	2	L2
		UNIT–III			
5.	a)	List the applications of DC Potentiometer and explain any one in detail	7M	3	L1
	b)	Discuss how to measure the self-reactance of coil using potentiometer	7M	3	L2
		OR			
6.		Explain the construction and working principle of Drysdale Polar AC potentiometer	14M	3	L2
		UNIT–IV			
7.	a)	List out the different methods available to measure low resistance	4M	4	L1
	b)	Explain the process of measuring low resistance using Kelvin Double Bridge	10M	4	L2
		OR			
8.	a)	List out the advantages of bridges	4M	4	L1
	b)	Determine the unknown capacitance using Schering Bridge with phasor diagram representation. Also determine the value of Dissipation factor	10M	4	L3
		UNIT–V			
9.	a)	Draw the Ramp type DVM and explain in detail	10M	5	L2
	b)	What is the purpose of Time Base Generator in CRO	4M	5	L1
		OR			
10.		Describe the operation of Successive Approximation type DVM with its block diagram and list out the advantages of the same	14M	5	L2

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