Hall Ticket Number :										

R-20

Code: 20A27MT

IV B.Tech. I Semester Supplementary Examinations May / June 2024

Smart Grid

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**

2. In Part-A, each question carries **Two marks.**

3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		CO	BL
	a)	What is the need of smart grid	CO1	2
	b)	What is GIS?	CO2	1
	c)	List out the types of fuel cells	CO3	1
	d)	What is meant by double layer capacitor	CO4	2
	e)	What is meant by cloud computing	CO5	2

PART-B

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

			Marks	CO	BL
		UNIT–I			
2.		Briefly explain the concept of plug in hybrid vehicle technology and its challenges	12M	CO1	4
		OR			
3.	a)	Discuss the concept of Robust and self-healing.	6M	CO1	4
	b)	Write short note on smart sensors	6M	CO1	2
		UNIT–II			
4.	a)	Explain the features and applications of PMU in power systems	6M	CO2	4
	b)	Write a short note on wide area measuring system.	6M	CO2	2
		OR			
5.		Explain about the intelligent electronic devices used for monitoring and protection.	12M	CO2	4
		UNIT–III			
6.	a)	Discuss about the various issues of inter connection of micro grid	6M	CO3	4
	b)	Write short note on organic solar cells.	6M	CO3	2
		OR			
7.		Explain in detail about the formation of micro grid and also mention its applications	12M	CO3	4
		UNIT–IV			
8.	a)	Write short note on standards in Electrical energy storage system.	6M	CO4	2
	b)	Give the comparison between DLG and SMES	6M	CO4	4
		OR			
9.		Explain in detail about the various storage technologies used in smart grid	12M	CO4	4
		UNIT–V			
10.	a)	What are the protocols and benefits of Advance metering infrastructure?	6M	CO5	2
	b)	Discuss about home area network	6M	CO5	4
		OR			
11.	a)	Explain the concept of cyber security for smart grid	6M	CO5	2
	b)	Write short note on wireless mess network	6M	CO5	4

*** End ***

Hall Ticket Number :										

Code: 20A27HT

R-20

IV B.Tech. I Semester Supplementary Examinations May / June 2024

Utilization of Electrical Energy

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**

2. In Part-A, each question carries **Two marks.**

3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

			CO	BL
1.	Answer ***all*** the following short answer questions	(5 X 2 = 10M)		
	a)	List the advantages of electrical drive used on traction.	CO1	L1
	b)	List the properties of a good heating element.	CO2	L1
	c)	Draw the circuit diagram of fluorescent lamp	CO3	L6
	d)	What are the problems associated with AC traction system?	CO4	L1
	e)	List out the types of electric vehicle chargers?	CO5	L1

PART-B

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

			Marks	CO	BL
		UNIT–I			
2.	a)	Demonstrate the temperature rise in motor with necessary equations?	6M	CO1	L2
	b)	Explain the starting and running characteristics of electric drives.	6M	CO1	L1
		OR			
3.		Summarize the different Types of Industrial Loads? Explain in detail.	12M	CO1	L6
		UNIT–II			
4.		Explain in detail about (i) Resistance welding (ii) Arc welding	12M	CO1	L1
		OR			
5.	a)	Explain dielectric heating with a neat sketch	6M	CO2	L1
	b)	Distinguish between electric and nonelectric welding	6M	CO2	L4
		UNIT–III			
6.	a)	State and prove the laws of illumination	6M	CO3	L2
	b)	With a neat diagram, explain the construction and working of sodium vapour lamp	6M	CO3	L6
		OR			
7.		Discuss different types of lightning schemes.	12M	CO3	L6
		UNIT–IV			
8.	a)	Explain the various types of traction systems in detail	6M	CO4	L1
	b)	Analyze the dynamic braking with suitable sketch.	6M	CO4	L4
		OR			
9.		Explain coefficient of adhesion and also discuss the factors affecting the coefficient of adhesion	12M	CO4	L1
		UNIT–V			
10.	a)	Briefly explain various types of electric vehicles	6M	CO5	L3
	b)	Explain different HEV configurations.	6M	CO5	L1
		OR			
11.	a)	Draw the basic block diagram of an Electric Vehicle.	6M	CO5	L6
	b)	List Advantages and Disadvantages of HEV.	6M	CO5	L4

*** End ***

Hall Ticket Number :										

R-20

Code: 20A27DT

IV B.Tech. I Semester Supplementary Examinations May / June 2024

Energy Auditing and Demand Side Management

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

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Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. In Part-A, each question carries **Two marks.**
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

			CO	BL
1.	Answer ***all*** the following short answer questions	(5 X 2 = 10M)		
	a) Define cost index.		1	1
	b) Define energy audit.		1	1
	c) Write the scope of Demand Side Management.		2	1
	d) Define harmonics.		4	1
	e) What is time value of money?		5	1

PART-B

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

			Marks	CO	BL
		UNIT–I			
2.	a)	What is the importance of energy conservation?	5M	1	2
	b)	Explain different energy conservation schemes.	7M	1	2
		OR			
3.	a)	Discuss about pie charts.	6M	1	2
	b)	Discuss about load profiles.	6M	1	2
		UNIT–II			
4.	a)	List out the responsibilities of energy auditors.	6M	2	1
	b)	Explain the procedure for presentations of energy audit reports.	6M	3	2
		OR			
5.		Discuss about the following energy instruments: (i) dataloggers (ii) thermocouples	12M	3	2
		UNIT–III			
6.		Explain (i) time of day pricing (ii) time of day model.	12M	2	2
		OR			
7.		Explain the evolution of Demand Side Management and the strategy or the same.	12M	2	2
		UNIT–IV			
8.		Explain the factors affecting the loss distribution of motors.	12M	4	2
		OR			
9.		Discuss how capacitors can be employed for improvement of power factor?	12M	4	2
		UNIT–V			
10.		Explain average rate of return method.	12M	5	2
		OR			
11.		Explain present value method.	12M	5	2

*** End ***