

PSE

39

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: 8025

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – DEC.2022 / JAN. 2023

Third Semester

Power System Engineering

P19PSE30 – SMART GRID TECHNOLOGY AND APPLICATIONS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

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

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is the need of Smart Grid?	2	K2	CO1
2.	What are the drivers for the Smart Grid?	2	K2	CO1
3.	What are the advantages of Synchro Phasors?	2	K1	CO2
4.	What are the applications of IoT in Smart Grid?	2	K1	CO2
5.	What is Micro Grid?	2	K1	CO3
6.	What are storage technologies?	2	K1	CO3
7.	What are the applications of Evolutionary Algorithms? Write any four algorithm names.	2	K1	CO4
8.	What are Computational Intelligence Techniques?	2	K1	CO4
9.	What is Cloud Computing?	2	K1	CO5
10.	What is Cloud Security?	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain what are the Global Smart Grid initiatives and Smart Grid Road map for India?	13	K2	CO1
	(OR)			
b)	Discuss functions, opportunities, challenges and benefits of Smart Grid.	13	K2	CO1
12. a)	With neat sketch explain operation of Phasor Measurement Unit (PMU).	13	K2	CO2
	(OR)			
b)	Explain Distribution Automation Systems and its advantages.	13	K1	CO2
13. a)	Discuss operation and challenges of distribution system with Electric Vehicles and Plug in hybrids.	13	K4	CO3
	(OR)			
b)	Compare Micro Grid and Smart Grid and write their advantages?	13	K4	CO3
14. a)	Explain Genetic Algorithm (GA) with a flow chart and discuss how a problem can be solved with GA?	13	K3	CO4
	(OR)			
b)	What are static and dynamic optimization techniques? Explain in detail with an applications?	13	K3	CO4
15. a)	What are Public, Private and Hybrid Clouds for Smart Grid? Explain.	13	K1	CO5
	(OR)			
b)	What is Cluster Computing? Draw its Architecture.	13	K1	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Explain Wide Area Monitoring Systems (WAMS) and write its applications.	15	K2	CO2
	(OR)			
b)	Discuss Resilient and Self-healing in Smart Grid. Discuss with an example.	15	K2	CO1

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 Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 8028

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – DEC.2022 / JAN. 2023

Third Semester

Power System Engineering

P19PSOE2 – INDUSTRIAL SAFETY

(Common to VLSI Design)

(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.	What do you mean by mechanical hazard? Give any two examples.	2	K1	CO1
2.	Infer the causes of electrical accidents in industries.	2	K2	CO1
3.	Write the role of electrical and mechanical maintenance departments in industries.	2	K2	CO2
4.	Distinguish repair and maintenance.	2	K2	CO2
5.	List the factors influencing the corrosion cause.	2	K1	CO3
6.	Interpret the effects of wear and how the wear can be prevented?	2	K4	CO3
7.	Why the fault finding activities are important?	2	K2	CO4
8.	Analyze the effects of high pressure fault in boiler?	2	K4	CO4
9.	Compare the benefits of preventive maintenance with corrective maintenance.	2	K4	CO5
10.	How the troubleshooting can be done in electric motors, if they fail to rotate in rated speed?	2	K3	CO5

PART – B

(5 x 13 = 65 Marks)

Q. No.	Questions-	Marks	KL	CO
11. a)	Summarize the salient features of industry act 1948 for health and safety.	13	K2	CO1
(OR)				
b)	i. Analyze the influencing factors, Causes and effects of electrical hazards such as 1. electric shock 2. Arc and blast	9	K2	CO1
	ii. Dissect the selection criteria the various types of fire fighting equipments	4	K4	CO1
12. a)	i. Explain the procedure to apply planned maintenance and proactive maintenance for any one of the industrial equipments.	8	K2	CO2
	ii. How the maintenance tools are handled safely for an effective maintenance.	5	K4	CO2
(OR)				
b)	i. Compare the effectiveness of the maintenance in terms maintenance cost and replacement of the equipment.	5	K4	CO2
	ii. Identify any four typical failures of the equipment in an industry and suggest the action to be taken for addressing the failure.	8	K3	CO2
13. a)	i. Infer the impact of corrosion based on economic, safety and environmental damage	9	K4	CO3
	ii. How the corrosion can be prevented? List the corrosion prevention methods.	4	K2	CO3
(OR)				
b)	Categorize the lubricants and explain any four types of lubrication methods.	13	K2	CO3
14. a)	i. Develop a decision tree to diagnose the fault in Boiler and Internal Combustion engine and explain.	8	K3	CO4
	ii. How the fault tracing can be done for electrical motors?	5	K2	CO4

(OR)

	b)	i.	Categorize the types of faults and interpret the causes of fault occurrence in machine tool system.	8	K4	CO4
		ii.	Write the purpose of fault tree analysis and give the nomenclature for various symbols in fault tree.	5	K2	CO4
15.	a)	i.	Explain the procedure and the factors to be considered for preventive maintenance.	6	K3	CO5
		ii.	What is overhauling of electric motors? Explain the procedure for the same.	7	K3	CO5
(OR)						
	b)	i.	Infer the usage of diesel generator set in an industry and explain the procedure of the type of maintenance for the diesel generator.	7	K4	CO5
		ii.	Identify the maintenance parameters for an air compressor and give suggestions to arrest air leakage in pipes.	6	K1	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.	Questions	Marks	KL	CO		
16.	a)	i.	Develop a fault analysis tree for the fire extinguishing process in an industry.	5	K3	CO4
		ii.	How the performance of the mechanical and electrical equipment in a textile mill can be evaluated for their expected performance. Suggest the program schedule for maintaining the equipment	10	K5	CO5
(OR)						
	b)	i.	Justify the need of maintenance department in an industry and dissect the functions and responsibility of the department.	8	K4	CO2
		ii.	Explain the protective strategies for mechanical hazards in a manufacturing industry.	7	K2	CO1

