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: 80021

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
Fifth Semester
Electrical and Electronics Engineering
U19EEV25 - WIND AND SOLAR ENERGY SYSTEMS
(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.	List the need for deployment of renewable energy resources.	2	K1	CO1
2.	Write about global climatic change.	2	K1	CO1
3.	Mention the factors considered for site selection to install wind turbines.	2	K2	CO2
4.	Recall hybrid systems.	2	K1	CO2
5.	Define the principle behind solar PV energy conversion.	2	K1	CO2
6.	Differentiate stand alone and grid connected solar PV system.	2	K2	CO2
7.	Name few parameters based on which an inverter is chosen for a specific application.	2	K1	CO4
8.	Recall matrix converters.	2	K1	CO4
9.	Interpret the impact of power quality issues on power system.	2	K2	CO5
10.	Summarize real and reactive powers.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Illustrate the need, potential, development and types of renewable energy system.	13	K2	CO1
		(OR)			
	b)	Infer about global climatic change and CO_2 reduction potential of renewable energy.	13	K2	CO1
12.	a)	Explain about basic principles of wind energy conversion.	13	K1	CO3
		(OR)			
	b)	Classify the types of wind turbines and Illustrate the control techniques.	13	K1	CO3
13.	a)	Demonstrate the different configurations, components and characteristics of SPV system.	13	K1	CO2
		(OR)			
	b)	Illustrate the techniques to measure and estimate the availability of solar radiation.	13	K1	CO2
14.	a)	Explain the operation of boost and buck-boost converter with respect of solar photovoltaic system.	13	K2	CO4
		(OR)			
	b)	Explain the operation of PWM inverters in wind system.	13	K2	CO4
15.	a)	Summarize fault ride through for wind farms in detail.	13	K2	CO5
		(OR)			
	b)	Explain voltage and frequency operating limits of solar and wind farms with control techniques.	13	K2	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Explain the operation of solar PV and wind farm behavior during grid disturbances.	15	K1	CO5
		(OR)			
	b)	Demonstrate hybrid and isolated operations of solar PV and wind systems with suitable diagrams.	15	K2	CO5