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: 80019

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS –NOV. / DEC. 2024
Sixth Semester
Electrical and Electronics Engineering
U19EE622 – GENERATION OF ELECTRICAL ENERGY
(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

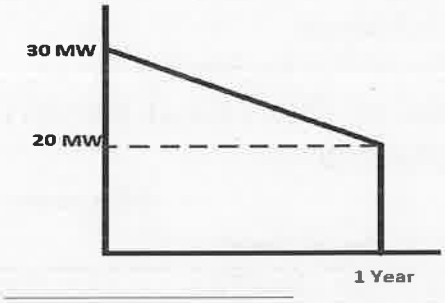
PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define load duration curve.	2	K1	CO1
2.	What do you mean by outages?	2	K1	CO1
3.	List the components of nuclear reactor.	2	K1	CO2
4.	Infer the factors to be considered while selecting a site for stream power plants?	2	K2	CO2
5.	What is photovoltaic effect?	2	K1	CO3
6.	Identify the application area of standalone PV system.	2	K3	CO3
7.	Compare horizontal axis torbine and vertical axis torbine.	2	K4	CO4
8.	What is yaw control?	2	K1	CO4
9.	Define microgrid.	2	K1	CO5
10.	Distinguish AC microgrid from DC microgrid.	2	K4	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	The yearly load duration curve of a power plant is a straight line (fig). The maximum load is 30 MW and the minimum load is 20 MW. The capacity of plant is 35 MW. Calculate the plant capacity factor, load factor and utilization factor. 	13	K4	CO1
		(OR)			
	b)	A residential consumer has 12 lamps of 40MW each connected at his premises. His demand is as follows. ◉ From 12 midnight to 5 AM – 80 W ◉ From 5 AM to 6 PM – No load ◉ From 6 PM to 7 PM – 320 W ◉ From 7 PM to 9 PM – 360 W ◉ From 9 PM to 12 midnight – 120 W Draw the load and load duration curve and find average load, maximum load, load factor, electrical energy consumption per day.	13	K3	CO1
12.	a)	Explain the working of thermal power plant with suitable diagram.	13	K2	CO2
		(OR)			
	b)	Illustrate the layout diagram of hydro power plant and also explain the components and working of hydro power plant.	13	K2	CO2
13.	a)	Explain the following solar applications in detail with necessary diagrams. i. Street lightning ii. Water pumping	13	K2	CO3
		(OR)			
	b)	Explain how the concept of perturb and observe method of maximum power point tracking is applied in a pv system.	13	K2	CO3
14.	a)	Explain the working of a Wind Energy Conversion System (WECS) with next block diagrams.	13	K2	CO4

(OR)

b)	i.	A wind turbine with 15 m diameter span has cut in speed of 10m/s, at which it develops 5 kW. Calculate the a. efficiency of turbine b. axial force on turbine.	8	K3	CO4
	ii.	Write a technical note on site selection consideration for wind energy system.	5	K1	
15. a)		Explain about the grid connected mode of operation and Control of micro grid.	13	K2	CO5

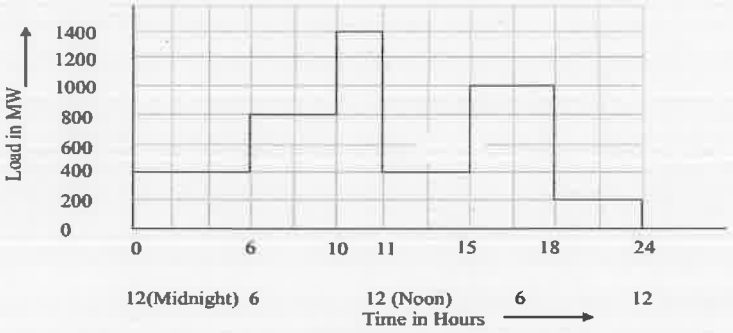
(OR)

b)		Explain about the Structure and working of AC and DC micro grid.	13	K2	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.		Questions	Marks	KL	CO
16. a)		The daily load curve of a power station is shown in following figure. Study the figure and answer the following questions. i) What is the maximum demand on the power station? ii) Calculate units generated per day. iii) Find the average load. iv) What is the load factor?	15	K4	CO1



(OR)

b)	i.	Analyze the safety aspects to be considered in various power plants.	8	K4	CO2
	ii.	Analyze the role of power electronic converters in solar PV system.	7	K4	