E **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 55001

Ph.D COURSE WORK EXAMINATION, MAY 2018

Elective

Course Work

15PPE501 - POWER ELECTRONICS FOR PV AND WIND ENERGY SYSTEMS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1.	(a)	Sketch the model of the following renewable energy sources			
		(i) PV array		CO1- U	(10)
		(ii) Wind electric generators		CO1- U	(10)
		Or			
	(b)	(i)	Illustrate the energy resources available in India.	CO1- U	(8)
		(ii)	Motive the need for renewable energy resources.	CO1- U	(8)
		(iii)	Outline some of the Wind farms and solar power plants available in India	CO1- U	(4)
2.	(a)	Explain the basic working principles of solar PV system used for power generation with necessary diagrams.		CO2- U	(20)
		Or			
	(b)	Explain the concept of Maximum Power Point Tracking (MPPT) algorithms.		CO2- U	(20)

3.	(a)	(i)	List out the benefits of Hybrid power plants.	CO3- U	(8)
		(ii)	Discuss in detail the need, working principle of PV – Diesel hybrid systems	CO3- U	(12)
			Or		
	(b)		Discuss in detail the need, working principle, advantages and drawback of Grid connected PV systems.	CO3- U	(20)
4.	(a)		Discuss in detail the need, working principle, advantages and drawback of standalone wind – diesel energy systems.	CO4- Ana	(20)
			Or		
	(b)		Discuss in detail the need, working principle, advantages and drawback of Grid connected wind energy systems.	CO4- Ana	(20)
5.	(a)		Elucidate the role of Micro controller in the Gate circuitry for wind energy systems.	CO5- Ana	(20)
			Or		
	(b)		Elaborate on power quality issues in hybrid/ renewable energy systems and mention the control measures.	CO5- Ana	(20)