Reg. No. : | | | | | | | | | | | | |

Question Paper Code: R8364

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2025

One credit Course

Electrical and Electronics Engineering

R21UEE864- SOLAR PHOTOVOLTAIC TECHNOLOGY

(Regulations R2021)

Duration: 1.30 Hours | Maximum: 50 Marks

Answer All Questions

PART A - (5 x 2 = 10 Marks)

1.	Explain the Term "Photovoltaic Effect".	CO1-U
2.	Define Insolation or Solar Irradiance	CO1-U
3.	Interpret the role of batteries in standalone PV systems.	CO1-U
4.	Apply the concept of balance-of-system components to troubleshoot a non-functioning standalone PV system.	CO3-App
5.	Analyze the impact of grid disturbances on grid-connected PV system performance.	CO2-Ana

PART – B (2 x 20= 20 Marks)

6.	(a)	Explain the structure and working of different types of solar cells and their suitability for varied applications.	CO1-U	(20)
		Or		
	(b)	Illustrate the techniques of PV cell interconnection and module fabrication, highlighting their impact on system efficiency.	CO1-U	(20)
7.	(a)	Apply the concept of balance-of-system components to design a grid-connected PV system for a commercial building.	CO3-App	(20)
		Or		
	(b)	Given a PV system with both AC and DC loads, propose a control strategy using balance of system components to prioritize critical loads like lighting during battery discharge.	CO3-App	(20)