

Roll No.																			
----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



**PRESIDENCY
UNIVERSITY**
BENGALURU

School of Engineering

Mid - Term Examinations - November 2024

Semester: III

Date: 07/11/2024

Course Code: EEE3024

Time: 09:30am – 11:00am

Course Name: Solar Photovoltaic and Wind Energy Systems

Max Marks: 50

Program: B.Tech

Weightage: 25%

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2 marks.

2Mx5Q=10M

- | | | | | |
|---|--|---------|----|-----|
| 1 | List out the different types of renewable energy sources. | 2 Marks | L1 | C01 |
| 2 | Define the terms: (a) Extraterrestrial Radiation (b) Terrestrial Radiation | 2 Marks | L1 | C01 |
| 3 | List out the importance of renewable energy usage. | 2 Marks | L1 | C01 |
| 4 | Define the terms: (i) Solar cell and (ii) Solar panel. | 2 Marks | L1 | C02 |
| 5 | How geothermal energy does harvesting? | 2 Marks | L1 | C02 |

Part B

Answer ALL Questions. Each question carries 10 marks.

4Qx10M=40M

- | | | | | |
|---|--|----------|----|-----|
| 6 | Illustrate recent technological advancements and industry trends that help to improve the renewable energy sector. | 10 Marks | L2 | C01 |
|---|--|----------|----|-----|

Or

- | | | | | |
|---|---|----------|----|-----|
| 7 | Summarize the need for the energy transition in concerns with environment and resource depletion. | 10 Marks | L2 | C01 |
|---|---|----------|----|-----|

- | | | | | |
|-----|---|---------|----|-----|
| 8a. | Explain the energy production using biomass. Mention its applications. | 5 Marks | L5 | C01 |
| 8b. | Explain the electricity generation by wind harness. Mention the challenges encountered during the electricity generation. | 5 Marks | L5 | C01 |

Or

9 Outline the characteristics of infrastructure, economic impact and resource availability using conventional energy sources. 10 Marks L2 CO1

10 Compare and explain the different configurations of Solar Photovoltaic (SPV) systems. 10 Marks L4 CO2

Or

11 Explain the Maximum Power Point (MPP) with P-V and I-V curves when the load is connected to a solar photo voltaic system. 10 Marks L5 CO2

12 Classify the solar collectors employed in solar thermal conversion systems and explain with neat diagrams. 10 Marks L2 CO2

Or

13 With a suitable block diagram, explain the off-grid connected solar photovoltaic system operation having the battery backup and other interface and synchronization features. 10 Marks L5 CO2