

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION)**

**CLASS: B.TECH / BARCH / IMSC**  
**BRANCH: ALL / ARCH / FT**

**SEMESTER: V**  
**SESSION: MO/2022**

**SUBJECT: EE365 INTRODUCTION TO SUSTAINABLE ENERGY**

**TIME: 2 HOURS**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The total marks of the questions are 25.
  2. Candidates attempt for all 25 marks.
  3. Before attempting the question paper, be sure that you have got the correct question paper.
  4. The missing data, if any, may be assumed suitably.
  5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
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		<b>CO</b>	<b>BL</b>
Q1 (a)	Discuss the availability of various energy sources.	[2] CO1	BL2
Q1 (b)	Write down the merits and demerits of conventional energy sources.	[3] CO1	BL1
Q2 (a)	Categorize the various energy sources using tree diagram.	[2] CO1	BL1
Q2 (b)	Write down various steps required for energy generation from hydro plants	[3] CO2	BL3
Q3 (a)	Briefly describe the applications of solar PV system in standalone mode.	[2] CO5	BL3
Q3 (b)	Mathematically derive the basic equation of solar cell for IV characteristics.	[3] CO3	BL5
Q4 (a)	Write down the differences between single stage and double stage grid connected PV system configuration.	[2] CO3	BL2
Q4 (b)	Discuss the energy generation mechanism of wind energy conversion system.	[3] CO2	BL4
Q5 (a)	What are different control aspects of grid connected PV system	[2] CO4	BL2
Q5 (b)	Design basic decoupled control philosophy for grid connected PV system	[3] CO5	BL6

::: 30/09/2022 :::M