

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

**CLASS: IMSC
BRANCH: PHYSICS**

**SEMESTER: III
SESSION: MO/2022**

SUBJECT: SEC307 RENEWABLE ENERGY AND ENERGY HARVESTING (REEH)

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 hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q1 (a)	What are conventional sources of energy? Briefly discuss the problem associated with conventional energy sources.	[3] 1	1
Q1 (b)	Define renewable energy. Mention the primary sources of renewable energy.	[2] 1	1
Q2 (a)	What are the pros and cons of Geothermal energy?	[2] 1	2
Q2 (b)	Discuss the main difference between primary and secondary energy sources with examples.	[3] 1	2
Q3 (a)	Consider a solar chimney 300 m high. Calculate the maximum possible conversion efficiency that can be obtained from the chimney. (Assume $C_p = 1005 \text{ J/Kg-K}$ and $T_a = 305 \text{ K}$).	[2] 2	3
Q3 (b)	Mention a few solar thermal applications and briefly discuss three of them.	[3] 2	2
Q4 (a)	Discuss working principles of different types of Solar Cooker.	[3] 2	2
Q4 (b)	What is the Greenhouse effect? Discuss two important effects of greenhouse gases.	[2] 2	2
Q5 (a)	Schematically present a non-convective Solar Pond.	[2] 2	1
Q5 (b)	Explain the working principle of a non-convective Solar Pond.	[3] 2	2

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