

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: B.ARCHITECTURE
BRANCH: ARCHITECTURE

SEMESTER : VII
SESSION : MO/2025

SUBJECT: AR403 ENERGY EFFICIENT ARCHITECTURE

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Classify various energy sources with examples. Explain Green House effect in buildings with sketches.	[5]	1&2 4
Q.1(b)	Define embodied energy and energy intensiveness. Describe the performance of a few contemporary energy efficient building materials.	[5]	1&2 2
Q.2.	Write short notes on (<u>Any three</u>) : a) Solar Pond, b) Passive Downdraught Cooling, c) IGBC LEED, d) Stack effect, e) Daylight Factor	[10]	2&3 1&2
Q.3(a)	Define with examples - Convective cooling, Evaporative cooling & Radiative cooling methods	[5]	4 3
Q.3(b)	Discuss in brief any two passive Solar Heating techniques in buildings in extreme cold climate region.	[5]	5 2
Q.4(a)	Explain the functioning of Solar Collectors with sketches.	[5]	4 2
Q.4(b)	What are different parts of Solar Water Heating? How does it function ?	[5]	2 5
Q.5(a)	Describe GRIHA Rating system highlighting it's energy efficient aspects.	[5]	3 2
Q.5(b)	Name two Green Buildings in India and elaborate their Green Building features.	[5]	5 5

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