

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

CLASS: B.ARCH
BRANCH: ARCHITECTURE

SEMESTER : VII
SESSION : MO/2022

SUBJECT: AR403 ENERGY EFFICIENT ARCHITECTURE

TIME: 3:00 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) Explain energy crisis and why do we need energy efficient architecture in India?? [2]
Q.1(b) What are the different energy sources and its broad classifications explain with example? [3]
Q.1(c) What are the different climatic zones in India as per NBC, and discuss its characteristics? [5]
- Q.2(a) Explain energy modeling and its importance. [2]
Q.2(b) What do you understand by term Thermal Performance of a building? [3]
Q.2(c) What are different types of Energy audit and associated phases of energy audit. [5]
- Q.3(a) Discuss Visual Performance assessment factors of any Building interior space [2]
Q.3(b) How Landscape design elements can be helpful in achieving the Energy Efficient architecture? [3]
Q.3(c) Describe various passive building design strategies suitable for Hot and Dry climate zone. [5]
- Q.4(a) Explain Green Buildings and its relevance. [2]
Q.4(b) Discuss working mechanism of Solar Evacuated Tube Collectors for Hot Water with the help of sketches and also discuss its advantages. [3]
Q.4(c) What are the different components and criteria's for LEED rating system [5]
- Q.5 Write short notes on any five from the following: [2X5]
(a) SHGC (b) U-value (c) Earth Air tunnel
(d) Roof Pond (e) Xeriscape (f) "U" pipe collectors

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