

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

CLASS: B.ARCH
BRANCH: ARCHITECTURE

SEMESTER : VII
SESSION : MO/19

SUBJECT: AR7305 BUILDING SCIENCE-II (ENERGY EFFICIENT BUILDING)

TIME: 3:00 HOURS

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 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) What are the different factors, required to be considered for designing an effective and efficient passive system for an institutional building in Ranchi, Jharkhand? [6]
- (b) Describe three different energy factors related to buildings. [6]
- Q.2(a) Define Convective cooling, Evaporative cooling and Radiative cooling. [6]
- (b) Describe the performance of building materials and building technologies in energy efficient architecture. [6]
- Q.3(a) Define Mass wall, Trombe wall and Water wall. [6]
- (b) Explain any three different systems of 'Passive Solar cooling Techniques' with necessary sketches. [6]
- Q.4(a) Write short notes on (any three) : [12]
1. Daylight factor
 2. Concentrating collector
 3. Rain water harvesting
 4. Zero energy building
- Q.5(a) Describe the functioning of Solar water heating in buildings. [6]
- (b) Describe the structure and functioning of flat plate solar collectors with neat sketches. [6]
- Q.6(a) Describe water as a landscaping element. [4]
- (b) How can a building be shielded from the summer sun and winter cold through landscaping? [8]
- Q.7(a) Define Green Building Concept elaborating GRIHA ratings. [6]
- (b) Name two green buildings in India and elaborate green bldg. features of any one in brief. [6]

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