

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

**CLASS: B.ARCH
BRANCH: ARCHITECTURE**

**SEMESTER : VII
SESSION : MO/18**

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) Explain the terms 'Global Warming' and 'Green House Effect'. [6]
Q.1(b) What are the energy needs for a modern multistoried office cum commercial complex? [6]
- Q.2(a) Describe the relevance of Energy Audit for an existing Institutional building? [4]
Q.2(b) Describe the performance of building materials and building technologies in energy efficient architecture. [8]
- Q.3(a) Define Radiative cooling, Evaporative cooling and Convective cooling. [6]
Q.3(b) Differentiate between Direct and Indirect Passive Solar Gain in buildings. [6]
- Q.4 Write short notes on (any three) : [12]
1. Trombe Wall
2. Passive Draught cooling
3. Sunspace/solarium
4. Earth air tunnel
- Q.5(a) Explain with necessary sketches flat plate collectors. [2]
Q.5(b) Differentiate between Active and Passive Systems in energy savings in building. [4]
Q.5(c) Describe five major components in active solar water heating systems. [6]
- Q.6(a) What are the landscaping strategies to be followed in warm humid climate? [6]
Q.6(b) How can a building be shielded from the summer sun and winter cold through landscaping? [6]
- Q.7(a) Name four green buildings in India and elaborate green bldg. features of any one in brief. [6]
Q.7(b) Define Green Building concept elaborating GRIHA Rating. [6]

:::::26/11/2018:::::M