

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

**CLASS: BARCH  
BRANCH: ARCH.**

**SEMESTER : VIII  
SESSION : SP/19**

**SUBJECT: AR8311 SUSTAINABILITY AND BUILT ENVIRONMENT**

**TIME: 3 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) Define Sustainable Architecture. [2]  
Q.1(b) What are the objectives of Sustainable Development? [4]  
Q.1(c) Describe the impacts of unsustainable design and building practices. [6]
- Q.2(a) What are the sustainability principles being followed in Indus Valley Civilisation? [6]  
Q.2(b) Describe the following: [6]  
i) Vastu of a plot  
ii) Economic sustainability
- Q.3(a) Discuss the functions of ventilation. [2]  
Q.3(b) Differentiate between Stack Effect and Venturi Effect. [4]  
Q.3(c) How the thermal balance of a building is maintained? [6]
- Q.4 Write short notes on (any three) : [4+4+4]  
a) Waste management in construction sites  
b) Comfort Zone  
c) TERI  
d) Sick building syndrome
- Q.5(a) Define Life cycle Analysis(LCA) of a building material. [2]  
Q.5(b) What are the sustainability managed alternatives of concrete? [4]  
Q.5(c) Describe with necessary sketches the building life cycle and material life cycle. [6]
- Q.6(a) What are the measures to be taken to maintain Energy efficiency in green building? [6]  
Q.6(b) How the green building can take care of indoor environment quality enhancement? [6]
- Q.7 Explain in brief on following for GRIHA Rating systems (any two): [6+6]  
a) Site Planning  
b) Building operation and maintenance  
c) Water Efficiency

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