

**MANIPAL UNIVERSITY****EIGHTH SEMESTER B. ARCH. DEGREE EXAMINATION – MAY 2016****SUBJECT: ELECTIVE I – ENERGY CONSCIOUS DESIGN (ARC-406.3)**

Friday, May 27, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

- ✍ Answer any FIVE questions.  
✍ Support your answers with sketches wherever necessary.

**1. Explain the following:**

- 1A. What is Embodied energy? Briefly explain by taking example of building materials.  
1B. Sustainable Site Planning

(5+5 = 10 marks)

2. Explain the objectives and strategies for passive building design in warm and humid climate.  
(10 marks)

3. What is the Heat island effect? Explain the components of green roofs and how it can be used to mitigate heat island effect

(3+7 = 10 marks)

**4. Explain the following:**

- 4A. Explain the bioclimatic approach to low energy buildings.  
4B. Explain passive building design in cold climates

(5+5 = 10 marks)

**5. Explain the following:**

- 5A. "We should do no less than green, but must also do more." How can we promote this ideology in building design?

**5B. Explain the following:**

- i) Net-Zero Energy Development  
ii) Brownfield Development

(5+2½+2½ = 10 marks)

6. Explain heat transfer in buildings and the importance of energy efficient building envelope.

(10 marks)

