

**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**FIRST SEMESTER EXECUTIVE M. ARCH. (ADVANCED DESIGN)**  
**DEGREE EXAMINATION – NOVEMBER 2018**  
**SUBJECT: ENERGY EFFICIENT BUILDING DESIGN (ARM-601-E)**

Friday, November 02, 2018

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. Impact of building sector on climate change  
1B. The concept of reduce, reuse and recycle

(5+5 = 10 marks)

2. Explain the importance of climatic analysis in building design. Explain the objectives and strategies for passive building design in hot and dry climates.

(3+7 = 10 marks)

- 3A. Explain the principles of sustainable site planning.  
3B. Explain heat transfer in buildings.

(5+5 = 10 marks)

**4. Explain the following:**

- 4A. Brownfield Development  
4B. Embodied Energy  
4C. Mixed Mode buildings  
4D. ECBC

(2½ marks × 4 = 10 marks)

- 5A. Explain the various methods of renewable energy that can be used to produce on site building energy.

- 5B. Explain green roofs and how they can be used to mitigate heat island effect.

(5+5 = 10 marks)

**6. Explain the following:**

- 6A. Explain any one building energy simulation program used in energy analysis.  
6B. Explain Building assessment systems.

(5+5 = 10 marks)

