

MANIPAL UNIVERSITY

FIRST SEMESTER EXECUTIVE M. ARCH. (ADVANCED DESIGN)
DEGREE EXAMINATION – NOVEMBER 2017

SUBJECT: ENERGY EFFICIENT BUILDING DESIGN (ARM-601-E)

Monday, November 13, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

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

1. Explain the following:

- 1A. Climate change and the impact of building sector on climate change.
1B. The concept of reduce, reuse and recycle.

(5+5 = 10 marks)

2. Explain the following:

- 2A. Explain the various strategies for sustainable site planning.
2B. What are the various renewable energy sources that can be used in buildings?

(5+5 = 10 marks)

3. Explain the following:

- 3A. Explain the heat transfer in buildings and explain the importance of building envelope optimization.
3B. Explain any one building energy simulation program used in energy analysis.

(5+5 = 10 marks)

4. Explain the importance of climatic analysis in building design. Explain the objectives and strategies for passive cooling design in buildings.

(3+7 = 10 marks)

5. Explain the following:

- 5A. Net-Zero Energy Development
5B. Brownfield Development
5C. Green roofs
5D. Evaporative cooling tower

(2½ marks × 4 = 10 marks)

6. What are green building rating systems? Explain one of the green building rating system in detail.

(3+7 = 10 marks)

