

MANIPAL UNIVERSITY

FIRST SEMESTER EXECUTIVE M. ARCH. (ADVANCED DESIGN)
DEGREE EXAMINATION – DECEMBER 2015

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

Monday, December 07, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer any FIVE full questions.

✍ Give sketches wherever relevant.

1. Explain the following:

1A. Renewable energy uses in Buildings

1B. Passive solar potential of 'Thermal storage' of building envelope

(5+5 = 10 marks)

2. Explain the following with respect to passive solar concepts

2A. Wind-tower

2B. Nocturnal Cooling

2C. Desiccant Cooling

(4+3+3 = 10 marks)

3A. Explain the basis of thermal load estimation of a building.

3B. What is the significance of orientation in energy requirements of a building?

(6+4 = 10 marks)

4A. Explain the components and functioning of *trans*-wall.

4B. Explain principle of roof-surface evaporative cooling.

(5+5 = 10 marks)

5A. What are the various ways of achieving energy efficiency in lighting?

5B. Explain 'Earth coupling' as a passive cooling option. How will it function in winter?

(6+4 = 10 marks)

6A. Explain the relevance of energy simulation packages in Architectural decision making, mentioning the capabilities of any one software.

6B. What are the objectives of ECBC? How are they achieved?

(6+4 = 10 marks)

