Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B. ARCH. DEGREE EXAMINATION – APRIL 2018

SUBJECT: PRINCIPLES OF SUSTAINABLE DESIGN (ARC-14-212)

(2014 SCHEME)

Monday, April 23, 2018

Time: 10:00 - 13:00 Hrs. Max. Marks: 50

- **Answer any FIVE questions.**
- **Support your answers with sketches wherever necessary.**
- **Mention any of the assumptions that you made while solving the problems.**

1. Discuss in detail about the environmental laws and legislations meant for the protection of environment and promotion of sustainable development in India.

(10 marks)

2. **Explain the following:**

2A. Climate Classifications based on ECBC.

2B. What are the parameters of Climate? Detail out the design strategies for warm and Humid Climate with respect to the climatic parameters.

(5+5 = 10 marks)

3. **Explain:**

3A. Explain what is waste management and importance of waste management.

3B. Explain in detail any two of the waste management methods.

(5 marks × 2 = 10 marks)

4. A brick wall 450mm thick has a thermal conductivity 0.811 W/m °C. The outside and inside surface conductance of the wall are 32 W/m^2 °C and 16 W/m^2 °C. Calculate the U-value of the wall in W/m^2 °C. Now what will be the U – value of the wall if there is an insulation of thermocol (outside) with R-value 20 m^2 °C/W.

(5+5 = 10 marks)

5. **Explain any TWO the following with the help of sketches:**

5A. Bio Swale

5B. Sewage treatment Plant

5C. Green-roof systems

(5+5 = 10 marks)

6. **Define any TWO of the following along with their units:**

6A. U- Value

6B. K- Value

6C. R- Value

(5+5 = 10 marks)