

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BArch- SEMESTER– 3 EXAMINATION – SUMMER 2016

Subject Code:1035005

Date:18/05/2016

Subject Name: Environmental Science

Time: 02:30PM - 04:30PM

Total Marks: 50

Instructions:

1. Attempt all questions.
2. Make suitable and proportionate sketches wherever required.
3. Figures to the right indicate full marks.

Q.1 (a) Write a Short note on "Wind Towers". **05**

OR

Describe the terminology Solar radiation. Which factors will affect the amount of Solar Radiation?

(b) Write a short note on "Green roofs" and "Roof Pond System". **05**

Q.2 (a) Why architects should design Passive solar building? Describe the ways/methods to control the solar radiation. **04**

OR

Why roof design is important in passive solar architecture? What are its functions? Describe the design approaches for roof design that is suitable to local climatic conditions.

(b) Write a short note on shading devices, its functions, types and factors to be considered while designing. Explain through sketches **06**

Q.3 What is K-Value, R-Value and U-Value? Write a short note. **10**

OR

Write the definitions of Conduction, Convection and Radiation. Explain Heat exchange process between building and external environment through appropriate sketch

Q.4 (a) Explain solar solstice in winter and summer season. Draw appropriate sketches. **04**

(b) What is comfort and comfort zone? Write a short note. **06**

Q.5 Explain the importance of day lighting in architectural design. Describe the basic principles of day lighting design and the challenges faced during spatial planning. **10**

OR

Describe the various methods of passive cooling techniques applied in historical buildings. (Thermal mass, ventilation, Micro Climate control, Evaporative cooling etc.....) Draw sketches if required.
