

BARCH
(SEM VIII) THEORY EXAMINATION 2017-18
ENERGY CONSCIOUS ARCHITECTURE

Time: 3 Hours

Total Marks: 100

Notes:

- Attempt all sections.
- Assume missing data, wherever necessary.

SECTION – A

- 1. Discuss the following in short. All questions carry equal mark. (10X2= 20)**
- a. Vertical Shadow Angle
 - b. Façade articulation
 - c. Bay windows
 - d. Berming.
 - e. Induced Ventilation
 - f. Ozone depletion
 - g. Solarium
 - h. Solar panels
 - i. Fenestration
 - j. Radiation cooling

SECTION – B

- 2. Attempt any five questions. All questions carry equal marks. (5X10=50)**
- a. How the solar geometry of a specific region does affect its built form? Explain by giving proper examples.
 - b. What are the various techniques available to reduce the heating load of a building in a cold climate? Explain with neatly labeled sketches.
 - c. Explain the working of a Solar water heater with all its components with the help of a diagram.
 - d. What are 'Wind towers'? Explain the principle of working, application and the problems associated with it.
 - e. What is the difference between Evaporative cooling and Passive desiccant cooling? Explain the working with the application in various passive cooling systems.
 - f. How can Fenestration affect the site/building development in energy-efficient design? Explain in accordance with their pattern and configuration.
 - g. What is the relationship between open space and built form? How can it be planned with respect to sustainable development?
 - h. Write short notes on:
 - i. Earth air tunnel system
 - ii. Vary Thermal wall
 - iii. Sun spaces

SECTION – C

- 3. Attempt any two questions. (2X 15= 30)**
- a. What do you understand by the term 'Climate responsive design strategies'? How do they differ with different climatic zones?
 - b. What are the available renewable resources that can be used to harness energy on a local level? How can they be implemented in a typical detached house?
 - c. Explain the different passive cooling strategies that can be implemented in a building with the example of a live project/building/case study.