

M. Arch. Sem-I (Sustainable Architecture) (2014 Course) (CBCS) :
WINTER - 2018

SUBJECT: ENERGY CONSERVATION-I (THERMAL)

Day: Monday
Date: 26/11/2018

W-2018-3470

Time: 10.00 A.M. TO 12.00 NOON
Max. Marks: 60

N.B:

- 1) Solve any three questions from each section.
 - 2) Answers to two sections should be written in **SEPARATE** answer books.
 - 3) All questions carry **10** marks.
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SECTION-I

- Q.1** Define or describe following terms: **(10)**
- | | |
|---------------------------|--|
| i) Overhead shades | iv) Radial ventilation corridor |
| ii) Transmittance | v) Sun dial |
| iii) Azimuth angle | |
- Q.2** Write short notes on: **(10)**
- a) Balanced urban pattern
 - b) Locating outdoor rooms in relation to sun and wind
- Q.3** Write short notes on: **(10)**
- a) Permeable Building
 - b) Sun penetration and heating for cold climate
- Q.4** Explain the design procedure and sizing of evaporative cooling tower with stack ventilation for hot and dry climate. **(10)**
- Q.5** Discuss how form and envelope affects external heat gain in Composite climate. **(10)**

SECTION-II

- Q.6** Define or describe following terms: **(10)**
- | | |
|-----------------------------|----------------------------|
| i) Solar envelope | iv) Conductance |
| ii) Sun path diagram | v) Latent heat gain |
| iii) Wind rose | |
- Q.7** Write short notes on: **(10)**
- a) Air Movement principles
 - b) Roof pond sizing and design
- Q.8** Write short notes on: **(10)**
- a) Process of site analysis by site matrix
 - b) Balance Point Temperature
- Q.9** Explain the sizing procedure advantages and problems of Thermal mass and Sunspaces. **(10)**
- Q.10** Discuss the heat gain calculation procedure for a classroom of 80 students of 120 s.q.m.r area. Assume necessary data wherever applicable. **(10)**