

BACHELOR OF ARCHITECTURE (B.Arch.)

Term-End Examination

00482

December, 2017

**BAR-029 : ARCHITECTURAL SCIENCES AND
SERVICES – I (CLIMATOLOGY)**

Time : 3 hours

Maximum Marks : 70

Note : *All questions carry equal marks. Question no. 1 is compulsory. Attempt any four questions from the rest.*

1. Write short notes on the following : 14
 - (a) Stack Effect
 - (b) Insolation
 - (c) Health Ventilation
 - (d) Globe Temperature

2. "Site features influence the microclimate of a site." Discuss the role of climatic elements on building design. Also narrate the processes involved in Site Analysis. 14

3. How do you design shading devices for openings ? Explain with sketches. 14

4. Discuss the characteristics of composite climate. How do these influence building design in the composite climate zones ? 14
5. What is meant by passive solar design ? Explain any four passive strategies with neat sketches and with reference to their climatic context. 14
6. What is a fenestration ? Discuss the different methods to bring daylight inside a deep space. 14
7. Explain in brief, the process of mechanical cooling in an air duct.

For a mechanically ventilated space
the outside temperature is 18°C ,
the inside temperature is 28°C , and
the internal heat gain is 5 kW.

What will be the cross-sectional area of an air duct ? [Take air velocity as 2 m/s, specific heat of air as $1300 \text{ J/m}^3\text{C}$] 14
