

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION- APRIL -2018

M.Tech IV Semester

COURSE CODE: 10M13CE334

MAX. MARKS: 25

COURSE NAME: Principles of Affordable Housing

COURSE CREDITS: 03

MAX. TIME: 1.5 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. Explain in detail the design strategies in thermal buildings with suitable examples. [CO1, CO3] (3)

Q2. Write short notes on-

(i) Importance of sunshading devices

(ii) Radiation through roofs

[CO2, CO3] (4)

Q3. "In winter, and particularly in colder climates, the sun can become a useful source of heat, and its inclusion or exclusion must therefore be given careful consideration". In order to optimize the environmental condition given in the statement, what are the solar design steps that should be followed in a building?

[CO2, CO5] (4)

Q4. Determine the required ventilation rate and number of air changes for the following data, Volume of room, $V = 1345$ cubic feet, Indoor temperature, $T_1 = 70^\circ$ F, Outdoor temperature, $T_2 = 65^\circ$ F, Heat Load to be removed, $Q = 12,000$ BTU/Hr.

[CO1, CO2, CO5] (3)

Q5. What are the different forms of heat? Explain the three different heat transfer mechanism in detail.

[CO2, CO3] (4)

Q6. "Moisture problems in buildings are normally due to the movement of a mixture of water vapour and air around and through the building shell". Elaborate the statement in view of surface condensation in buildings.

[CO1, CO4] (3)

Q7. Explain the various strategies for achieving the air movement naturally in a building. [CO1] (4)