X

Unit 4 - Heat Transfer Concepts in Buildings

Register for Certification exam

Course outline

How to access the portal

Introduction

Environmental factors and climatic zones

Heat Transfer Concepts in Buildings

- mod03lec10
- mod03lec11
- mod03lec12
- mod03lec13
- PDF of lecture slides (Week 3)
- Quiz : ASSIGNMENT 3
- Solution of assignment 3

Heat Transfer Concepts in Buildings - 2

Thermal Comfort

ASSIGNMENT 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-02-20, 23:59 IST.**

Note : In Numeric type questions, kindly please enter the numeric value only upto 2 decimal places. Do Not enter units or some other expression as this might evaluate the answer as wrong. eg: if answer is '45.60' then '45.60 degrees' as an answer would be taken as wrong by the computer.

1) What is the correct expression for Transmission Matrix for air Layer on inner side of wall. ***2 points***
Given, h_i and h_o are the surface conductances of inner and outer surfaces respectively.

- $\begin{bmatrix} 1 & -\frac{1}{h_i} \\ 0 & 1 \end{bmatrix}$
- $\begin{bmatrix} 1 & -\frac{1}{h_o} \\ 0 & 1 \end{bmatrix}$
- $\begin{bmatrix} -\frac{1}{h_o} & 1 \\ 0 & 1 \end{bmatrix}$
- $\begin{bmatrix} -\frac{1}{h_i} & 1 \\ 0 & 1 \end{bmatrix}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\begin{bmatrix} 1 & -\frac{1}{h_i} \\ 0 & 1 \end{bmatrix}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
W/(mK)

3) Equivalent temperature of opaque surface receiving radiation, which takes into account temperature due to radiation, in addition to air temperature, to cater for effect of radiation on opaque surface, is called as …… ***2 points***

- Radiative Temperature
- Sol Air Temperature
- Sol Air Excess
- None of These

No, the answer is incorrect.
Score: 0

Accepted Answers:
Sol Air Temperature

A room 8m x 5m x 3m (height) with one external wall on the long axis has a single glazed window 4.5m x 2m facing south. Given, T oa = 23°C, T ia = 17°C and the mean global irradiance normally incident on the exposed wall is 200 W/m 2 . Assuming α of solid wall = 0.4, h o = 9 W/m 2 , U of wall = 0.7 W/(m^2 C), U of window = 5.6 W/(m^2 C). Assume two air changes per hour for the room and all adjacent room to be at the same temperature and Solar gain factor for glass = 0.76. Find out the following

4) What is the mean heat gain (in Watts) through the external wall (excluding the window portion)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 150,160

6 points

5) What is the radiation heat (in Watts) gain through the window

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1300,1400

4 points

6) What is the ventilation heat gain in watts

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 460,500

4 points

Previous Page End