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Courses » Energy Efficiency, Acoustics and daylighting in Building

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Unit 8 - Ventilation

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Course outline

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Assignment 7

Assignment 7

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2019-03-20, 23:59 IST.**
assignment.In case of multiple choice questions, choose the closest option in case of making approximations/
round-offs (when applicable).

Questions 4 and 5 are linked.

1) The shape of a building (in plan view) is shown in the figure below.

Length of each side of the above shape is 'x' and its area is 'A'. Determine the constant 'k' in the
following expression that relates 'A' and 'x';

$$x = k \sqrt{A}$$

No, the answer is incorrect.**Score: 0****Accepted Answers:***(Type: Range) 0.440,0.470***3 points**2) Following alternatives in the shape, roof and wall materials are considered for
performing optimal thermal design of a building.

In the above optimization problem, how many decision variables are involved?

No, the answer is incorrect.**Score: 0****Accepted Answers:***(Type: Range) 2.99,3.01*

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Noise Control

Fundamentals of
DaylightingDaylighting
DesignInteraction
Session**No, the answer is incorrect.****Score: 0****Accepted Answers:***(Type: Range) 39.9,40.1***2 points**

4) In a room having 1.2 kg of air in total, the temperature is 36°C and moisture content is 0.0345 kg/kg. The desired room temperature and the moisture content are 27°C and 0.0207 kg/kg. Given, the specific heat capacity of air is 1.024 kJ/(kg.K), latent heat of vaporization of water is 2510 kJ/kg. Assume the density of air and the above thermodynamic properties to be constant over the range of temperatures considered.

Determine the amount of sensible heat (in kJ) to be removed from the room in order to attain the desired temperature?

No, the answer is incorrect.**Score: 0****Accepted Answers:***(Type: Range) 10,12***2 points**

5) Using the information provided in question 4), determine the amount of latent heat (in kJ) to be removed from the room in order to attain the desired moisture content?

No, the answer is incorrect.**Score: 0****Accepted Answers:***(Type: Range) 40,42***2 points**

6) What should be the minimum separation (S_{\min}) between buildings (in m) shown below so that the wind shadow effect is avoided? The direction of wind and the building heights are shown in the figure.

No, the answer is incorrect.**Score: 0****Accepted Answers:***(Type: Range) 59,61***2 points**

7) Consider a room having openings of areas A_1 and A_2 in series on the windward and leeward sides respectively. When the disparity between the areas of openings is very high, then the volume of air flow through the room is mainly governed by

- area of larger sized opening
- area of smaller sized opening
- areas of both the openings equally influence the volume of air flow

No, the answer is incorrect.**Score: 0****Accepted Answers:**

area of smaller sized opening

8) Identical windows are provided on opposite walls of a room and one of the windows faces normally incident wind. The fenestration area of the room is 6 m^2 and its floor area is 20 m^2 . Also, it is given that the sill height of the windows is 0.6 m . Determine the indoor wind speed (in m/s) when the outdoor wind speed is 20 m/s .

Hint

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) 6,7

4 points

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