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NPTEL

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Courses » Radiative Heat Transfer

Announcements

Course

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Unit 1 - How to access the portal

Register for
Certification exam

Course outline

How to access the portal

- How to access the home page?
- How to access the course page?
- How to access the MCQ, MSQ and Programming assignments?
- How to access the subjective assignments?
- Quiz : Assignment 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Assignment 0

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2019-02-04, 23:59 IS**

1) Determine the temperature of a black isothermal sphere orbiting around the Earth and exposed to **1 point** only solar radiation. Assume $q_{sol} = 1353 \text{ W/m}^2$

- 273 K
- 278 K
- 298 K
- 313 K

No, the answer is incorrect.

Score: 0

Accepted Answers:

278 K

2) In the problem 1, If the sphere absorbs radiation only in the spectral range (0.4 μm to 3 μm), determine its temperature. Assume the sphere behaves as black body in the given spectral range **1 point**

- 800 K
- 298 K
- 600 K
- 400 K

No, the answer is incorrect.

Score: 0

Accepted Answers:

600 K

3) Determine the solid angle with which a sphere of radius 1 m is seen from another sphere of **1 point** radius 1 cm.

- $3.14 \times 10^{-4} \text{ sr}$

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$$3.14 \times 10^{-4} \text{ sr}$$

4) A material surface at 600 K has the following spectral, directional emittance:

1 point

$$\epsilon'_\lambda = \begin{cases} 0.9 \cos \theta & \lambda < 1 \mu\text{m} \\ 0.2 & \lambda > 1 \mu\text{m} \end{cases}$$

What is total, hemispherical emittance of the surface?

- 0.50
- 0.35
- 0.25
- 0.20

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.20

5) The view factor between two parallel infinitely long cylinders of same radius, R, and separated by a distance of 2R from center to center is

1 point

- 0.081
- 0.81
- 0.0081
- 0.19

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.081



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