

Assignment: 4 RADIATION

1. Define the following terms:

(i) Total emissivity, (ii) Grey body, (iii) Radiosity, (iv) Solid angle (v) Kirchhoff's law (vi) Lambert cosine law (vii) Monochromatic emissive power (viii) Emissivity

2. Define total emissive power (E_b) and intensity of radiation (I_b). Show that

$$E_b = \pi \times I_b$$

3. State and explain Stefan Boltzmann law.

4. Define and explain Radiation Shield and Radiation Shape factor.

5. Define view factor and hence derive an expression for view factor between two parallel infinite grey plates.

6. Derive expression for Radiation Heat exchange between two concentric infinite long grey cylinders.

7. Derive the expression for radiant heat exchange between two non-black parallel surfaces.