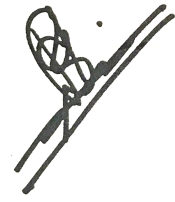


## PHYSICS (GRADE-7)

### Lesson 24: Radiation



Mrs. Ruksana & Mrs. Farhana

**Define.**

#### **i. Radiation**

Radiation is the process of transfer of heat energy in the form of electromagnetic waves.

#### **ii. Good absorber and good emitter**

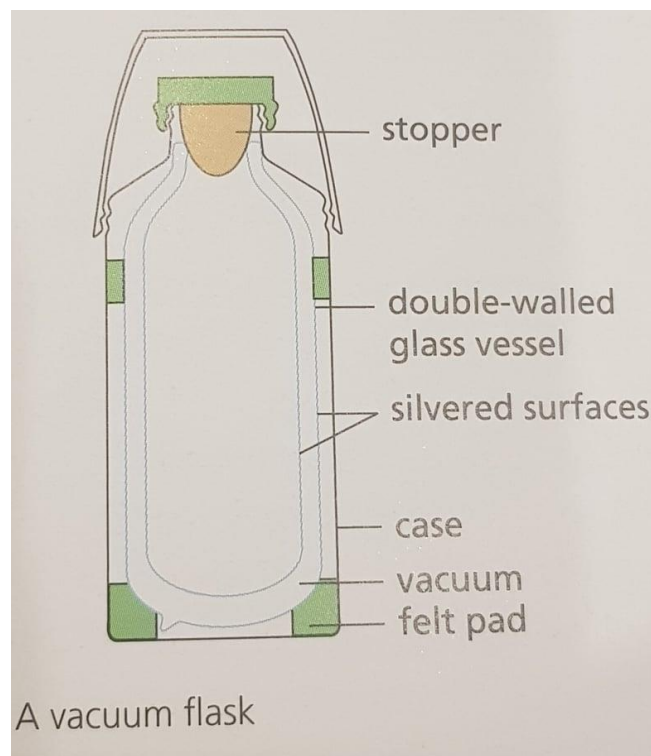
Dull dark surfaces are good absorbers and good emitters. For example, the black painted cooling fins on the heat exchangers at back of a refrigerator.

#### **iii. Bad absorber and bad emitter**

Light shiny surfaces are bad absorbers and bad emitters. For example, polished saucepans.

#### **1. Explain the working principle of a vacuum flask (Thermos flask).**

A vacuum flask keeps hot liquids hot or cold liquids cold. It is very difficult for heat to travel into or out of the flask. Transfer by conduction and convection is reduced by making the flask a double walled glass vessel with a vacuum between the walls. Radiation is reduced by silvering both walls on the vacuum side.



## **2. Why are houses in hot countries painted white?**

Light shiny surfaces are poor absorbers of radiation. White color reflects heat and reduces absorption of heat radiation from the Sun. Thus the white paint prevents the houses from being too hot.

## **3. How does a greenhouse act as heat-trap?**

Light and short-wavelength infrared from the Sun penetrate the glass of a greenhouse and are absorbed by the soil, plants, etc., raising their temperature. This in turn emit infrared but, because of their relatively low temperature, this has a long wavelength and is not transmitted by the glass. The greenhouse thus acts as a heat-trap and its temperature rises.