

# 41 Lecture - PHY101

## Important Subjective

**What is thermal equilibrium?**

**Ans:** Thermal equilibrium is a state where there is no net flow of heat between two systems in contact. The temperature of the two systems becomes equal at this point.

**Define specific heat capacity.**

**Ans:** Specific heat capacity is the amount of heat energy required to raise the temperature of one unit mass of a substance by one degree Celsius.

**What is the difference between a conductor and an insulator?**

**Ans:** A conductor is a material that allows the transfer of heat easily, while an insulator is a material that does not allow the transfer of heat easily.

**What is the difference between conduction and convection?**

**Ans:** Conduction is the transfer of heat energy through a material due to the transfer of kinetic energy from one particle to another. Convection, on the other hand, is the transfer of heat energy due to the movement of fluids or gases.

**What is the first law of thermodynamics?**

**Ans:** The first law of thermodynamics states that energy cannot be created or destroyed, only converted from one form to another.

**How does the rate of heat transfer vary with distance?**

**Ans:** The rate of heat transfer decreases with distance. This is because the heat energy is dispersed over a larger area as it moves away from the source.

**What is the difference between heat and temperature?**

**Ans:** Heat is a form of energy, while temperature is a measure of the average kinetic energy of the particles in a substance.

**Define latent heat.**

**Ans:** Latent heat is the amount of heat energy required to change the state of a substance without changing its temperature.

**What is thermal expansion?**

**Ans:** Thermal expansion is the tendency of materials to expand when heated and contract when cooled.

**What is a thermocouple?**

**Ans:** A thermocouple is a device used to measure temperature by utilizing the voltage generated by the junction of two different metals at different temperatures.