Assignment No: 1

1. Explain exchange between hot object and a cold object

Heat Exchange Between a Hot Object and a Cold Object

1. **Heat Transfer**: The hot object loses heat energy, while the cold object gains heat energy.
2. **Temperature Change**: The temperature of the hot object decreases, and the temperature of the cold object increases until both objects reach thermal equilibrium.
3. **Principle of Heat Exchange**: In an isolated system (e.g., a heat-resistant box), no heat is lost to the environment. The heat energy lost by the hot object equals the heat energy gained by the cold object.

Formula:
Heat energy lost by the hot object = Heat energy gained by the cold object

Applications: Used in laboratory thermal insulation and heat exchange systems.

2 Explain different ways of heat transfer

Methods of Heat Transfer:

1. **Conduction**:
   - Transfer through direct contact between particles without movement of the substance itself.
   - *Example*: A metal rod heats up when one end is placed in a flame.
2. **Convection**:
   - Transfer through the movement of fluids (liquids or gases) due to temperature differences.
   - *Example*: Water heating in a pot, where hot water rises and cold water sinks.
3. **Radiation**:
   - Transfer via electromagnetic waves without requiring a medium.

- *Example*: Solar radiation heating the Earth.