

Distinguish, differentiate, compare and explain what is the Difference between Conduction, Convection and Radiation. Comparison and Differences.

What is Conduction ?

Conduction is the process by which heat energy is transmitted through collisions between neighboring atoms or molecules

What is Convection ?

Convection is the phenomenon through which heat is transfer due to the movement of particles in the fluids like liquids and gases.

What is Radiation ?

Radiation differs from Conduction and Convection heat t transfer mechanisms, in the sense that it does not require the presence of a material medium to occur. Energy transfer by radiation occurs at the speed of light and suffers no attenuation in vacuum. Radiation can occur between two bodies separated by a medium colder than both bodies.

Difference between Conduction, Convection and Radiation

S.No.	Conduction	Convection	Radiation
1	Conduction is the transfer of heat by direct physical contact.	Convection is the transfer of heat by the motion of a fluid.	Radiation is the transfer of heat by electromagnetic waves.
2	It is due to temperature difference. Heat flows from high temperature region to low temperature region.	It is due to difference in density. Heat flows from low density region to high density region.	It occurs from all bodies at temperatures above 0 K.
3	It occurs in solids through molecular collisions, without actual flow of matter.	It occurs in fluids by actual flow of matter.	It can take place at large distances and does not heat the intervening medium.
4	Conduction is a slow process.	Convection is a slow process.	Radiation propagates at the speed of light.
5	Conduction does not obey the laws of reflection and refraction.	Convection does not obey the laws of reflection and refraction.	Radiation obeys the laws of reflection and refraction.