Propagation of Electromagnetic wave part2 Lecture-19

TDC PART -1

PAPER 1(GROUP B)

Chapter -6

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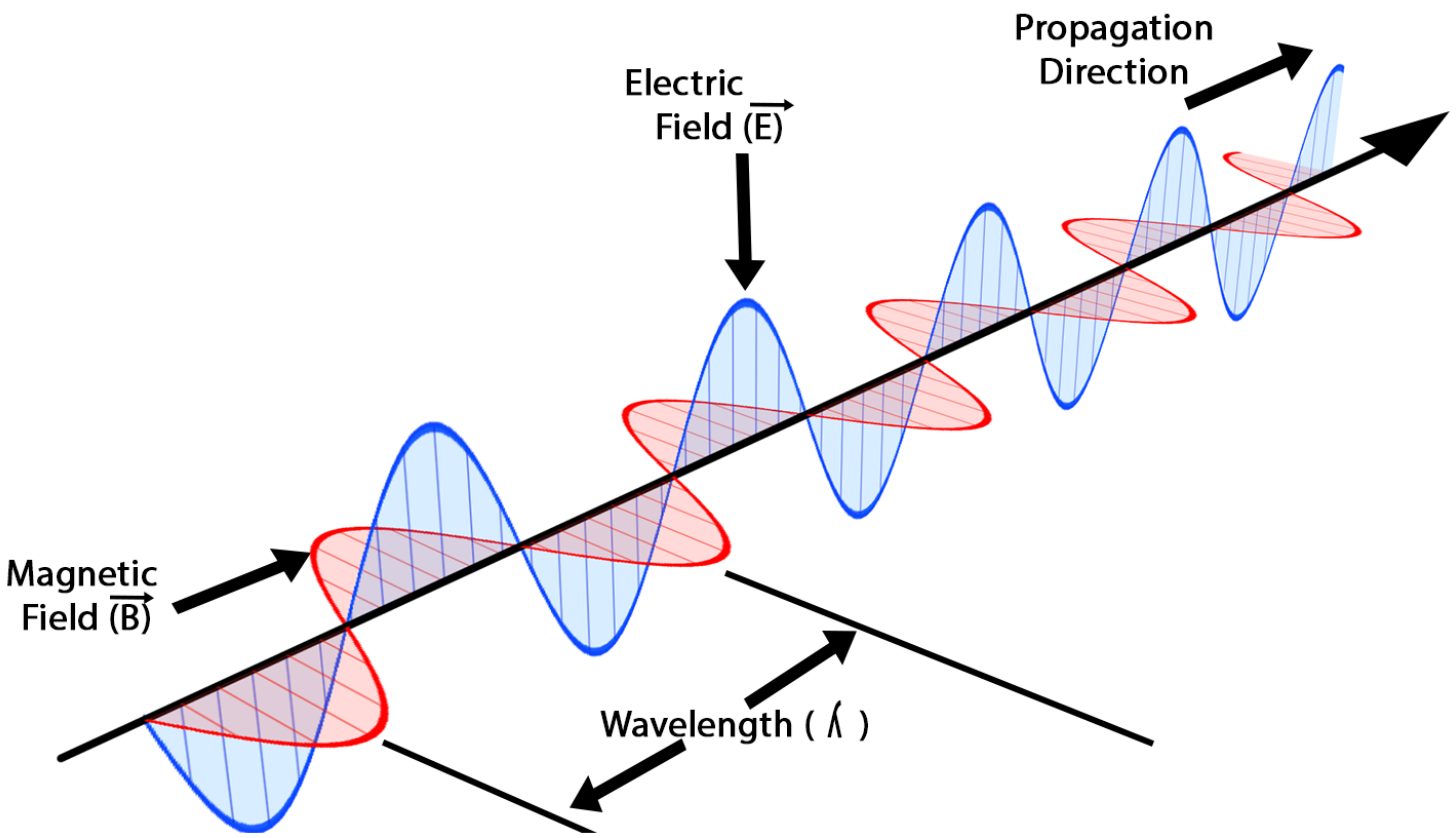
Defination

- Electromagnetic Waves also called Electromagnetic Radiations are basically defined as superimposed oscillations of an Electric and a Magnetic Field in space with their direction of propagation perpendicular to both of them. In simple words, electromagnetic waves are oscillations produced due to crossing over of an electric and a magnetic field.

Electromagnetic Wave



The mechanism of energy transport

- Energy transport through a medium involves the absorption and reemission of the wave energy by the atoms of the material.
- When an electromagnetic wave impinges upon the atoms of a material, the energy of that wave is absorbed

- The absorption of energy causes the electrons within the atoms to undergo vibrations.
- The vibrating electrons create a new electromagnetic wave with the same frequency as the first electromagnetic wave.

- Once the energy of the electromagnetic wave is reemitted by an atom, it travels through a small region of space between atoms.
- Once it reaches the next atom, the electromagnetic wave is absorbed, transformed into electron vibrations and then reemitted as an electromagnetic wave.