Fundamental of Electromagnetic wave Lecture-15(part 2)

TDC PART -1

PAPER 1(GROUP B)

Chapter -6

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Electromagnetic theory (maxwell)

- A Dynamical Theory of the Electromagnetic Field" in 1865, Maxwell demonstrated that electric and magnetic fields travel through space as waves moving at the speed of light. He proposed that light is an undulation in the same medium that is the cause of electric and magnetic phenomena.

Discovery of electromagnetic wave theory

- In 1887 Heinrich Hertz demonstrated the existence of the waves predicted by Maxwell by producing radio waves in his laboratory. It took a bit longer for scientists to discover the higher-energy (shorter wavelength) light in the electromagnetic spectrum.

Formulaes for electromagnetic waves

- Electromagnetic radiation can be described by its amplitude (brightness), wavelength, frequency, and period. By the equation E = h v E=h\nu E=hv , we have seen how the frequency of a light wave is proportional to its energy.

Importance of electromagnetic wave

- Electromagnetic waves are used to transmit long/short/FM wavelength radio waves, and TV/telephone/wireless signals or energies. They are also responsible for transmitting energy in the form of microwaves, infrared radiation (IR), visible light (VIS), ultraviolet light (UV), X-rays, and gamma rays

7 types of waves in the electromagnetic spectrum

- Radio waves
- Microwaves
- Infrared
- Optical
- Ultraviolet
- X-rays
- Gamma-rays.