

## Electromagnetic waves

1. A plane electromagnetic wave travels in vacuum along z direction. What can you say about the directions of electric and magnetic field vectors ? If the frequency of the wave is 30 MHz, what is its wave length.
2. Write the order of frequency range and one use of each of the following electromagnetic radiations : a) microwaves b) ultraviolet rays.
3. What do electromagnetic waves consists of ? Explain on what factors does its velocity in vacuum depend ?
4. Give two characteristics of electromagnetic waves . Write the expression for velocity of electromagnetic wave in terms of permittivity and permeability of the medium
5. What is meant by transverse nature of electromagnetic waves ?
6. Draw a diagram showing the propagation of an electromagnetic wave along x direction, indicating the directions of oscillating electric and magnetic fields associated with it ?
7. Long distance radio broadcast use short wave bands why ?
8. It is necessary to use satellite for long distance TV transmission why ?
9. Name the part of electromagnetic spectrum of wave length  $10^{-2}$ m and mention its one application
10. Why are microwaves used in RADAR ?