



PHYSICS

CH: 8 ELECTRO MAGNETIC WAVES

Name: _____

Date: _____

Class: XII Sec: A ____

1. A plane electromagnetic wave of frequency 25MHz travels in free space along the x- direction. At a particular point in space and time the electric vector is $E = 6.3\text{v/m}$ j. Calculate B at this point.
2. Write the formula for velocity of light in a material medium of relative permittivity ϵ_r and relative magnetic permeability μ_r .
3. An em wave exerts pressure on the surface on which it is incident. Justify.
4. Write the following radiations in ascending order in respect of their frequencies; x rays, microwaves, uv rays and radio waves.
5. Arrange infra red, visible, gamma, x rays, radio wave and micro wave in the increasing order of wavelength.
6. How are radio waved produced?
7. How are x rays produced?
8. By which way, the x rays and gamma rays a can be distinguished?
9. Micro waves are used in radar. Why?
10. Name the electromagnetic radiations to which waves of wavelength in the range of 10^{-2} m belong. Give on e use of this part of the em spectrum.
11. Which part of em spectrum has large penetrating power?
12. Name the part of em spectrum whose wave length lies in the range of 10^{-10} m. give its one use.
13. Find the wave length of em waves frequency 4×10^9 Hz in free space. Give its two applications.
14. What physical quantity is the same for x rays of wavelength 10^{-10} m, red light of wavelength 6800\AA and radio waves of wavelength 500m.
15. The following table gives the wavelength of some constituents of the em spectrum. Select the wave length range and name the em waves that are used in
 - (i) Radar system for aircraft navigation
 - (ii) Earths satellites to observe growth of crops

s. no	Wavelength
1	1mm to 700nm
2	0.1m to 1mm
3	400nm to 1nm
4	$<10^{-3}$ nm



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- 16 The small ozone layer on top of the stratosphere is crucial for human survival. Why? 1
(2019 CBSE)
- 17 Illustrate with suitable examples, how you can show that electromagnetic waves 1
carry both energy and momentum. (2019 CBSE)
- 18 A parallel plate capacitor of plate area A each and separation d , is being charged by 2
an ac source. Show that the displacement current inside the capacitor is the same as
the current charging the capacitor. (2019 CBSE)



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