DPP – 2 [Electromagnetic Waves]

Chapter: Structure of Atom

"Assignment boring nahi hai… Woh bridge hai tumhare current life aur dream life ke beech."

TYPE 1 : Wavelength, Frequency & Wave Number

Q.1 **A particular station of All India Radio, New Delhi, broadcasts on a frequency of 1,368 kHz. The wavelength of the electromagnetic radiation emitted by the transmitter is (Speed of light, $c = 3.0 \times 10^8$ ms^{-1})** [NEET 2021]

(1) 219.3 m
(2) 219.2 m
(3) 2192 m
(4) 21.92 cm

Q.2 **A particular radiostation broadcasts at a frequency of 1120 kHz and another at 98.7 MHz. The wavelengths of radiations from the two stations respectively are**

(1) 267.86 m and 3.04 m
(2) 134 m and 6.08 m
(3) 535.7 m and 1.52 m
(4) 267.86 m and 6.08 m

Q.3 **Electromagnetic radiation travels through vacuum at a speed of**

(1) 186000 m/s
(2) 125 m/s
(3) 3.00×10^8 m/s
(4) It depends upon wavelength

Q.4 **How long would it take a radio wave of frequency 6×10^3 s^{-1} to travel from Mars to Earth, a distance of 8×10^7 km?**

(1) 2.66×10^2 s
(2) 1.33×10^2 s
(3) 5.32×10^2 s
(4) 1.0×10^3 s

Q.5 **The value of Planck's constant is 6.63×10^{-34} J s. The speed of light is 3×10^{17} nm s^{-1}. Which value is closest to the wavelength in nanometre of a quantum of light with frequency 6×10^{15} s^{-1}?**

(1) 75
(2) 10
(3) 25
(4) 50

Q.6 **The wavelength of an electromagnetic radiation is 400 nm. Thus, the wave number will be equal to** [NCERT Pg. 38]

(1) 2.5×10^4 cm^{-1}
(2) 2.5×10^3 cm^{-1}
(3) 2.5×10^5 cm^{-1}
(4) 2.5×10^2 cm^{-1}

Q.7 **The wave number ($\bar{\nu}$) in cm^{-1} of yellow radiation having a wavelength of 5800 Å is**

(1) 17241.37 cm^{-1}
(2) 8620.68 cm^{-1}
(3) 34482.75 cm^{-1}
(4) 5800 cm^{-1}

TYPE 2 : Electromagnetic Spectrum

Q.8 **The correct sequence of frequency of the electromagnetic radiations in the electromagnetic spectrum is**

(1) X-rays > UV rays > Microwaves > Radio waves
(2) Radio waves > Microwaves > UV rays > X-rays
(3) UV rays > X-rays > Radio waves > Microwaves
(4) Radio waves > Microwaves > X-rays > UV rays

Q.9 **Electromagnetic radiation with maximum wavelength is**

(1) UV (2) Radiowaves (3) X-rays (4) Infrared