PYQSide PYQSide.com — free PYQs with solutions Powered by TestBlink

NEET ELECTROMAGNETIC WAVES — SOURCES AND NATURE OF ELECTROMAGNETIC WAVES — PYQS

Max. Marks: 32 **Questions:** 8

Section A (MCQ) — 8 questions

Q.1 Match **List-I** with **List-II** : [NEET (UG) 2026]

List-I (Electromagnetic wave)		List-II (Production)	
A.	Microwave	I.	Electrons in atoms emit light when they move from a higher energy level to a lower energy level
B.	Visible light	II.	Radioactive decay of nucleus
C.	Gamma rays	III.	Vibration of atoms and molecules
D.	Infra-red rays	IV.	Klystron valve or magnetron valve

(1) A-IV, B-III, C-II, D-I (2) A-III, B-IV, C-I, D-II
(3) A-III, B-I, C-II, D-IV (4) A-IV, B-I, C-II, D-III

Scan or tap for the full solution

Q.2 The property which is not of an electromagnetic wave travelling in free space is that: [NEET (UG) 2024]

(1) They are transverse in nature
(2) The energy density in electric field is equal to energy density in magnetic field
(3) They travel with a speed equal to $\frac{1}{\sqrt{\mu_0\varepsilon_0}}$
(4) They originate from charges moving with uniform speed

Scan or tap for the full solution

Q.3 Out of the following options which one can be used to produce a propagating electromagnetic wave? [NEET 2016 (Phase 1)]

(1) A chargeless particle
(2) An accelerating charge
(3) A charge moving at constant velocity
(4) A stationary charge

Scan or tap for the full solution

Q.4 The electric field associated with an em wave in vacuum is given by $\vec{E} = \hat{i}\,40\cos(kz - 6\times10^8 t)$ where E, z and t are in volt/m, meter and seconds respectively. The value of wave vector k is [AIPMT 2012 (Prelims)]

(1) 2 m^{-1} (2) 0.5 m^{-1} (3) 6 m^{-1} (4) 3 m^{-1}

Scan or tap for the full solution

Q.5 The electric and the magnetic field, associated with an e.m. wave, propagating along the +z-axis, can be represented by [AIPMT 2011 (Prelims)]

(1) $\vec{E} = E_0\hat{i},\ \vec{B} = B_0\hat{j}$ (2) $\vec{E} = E_0\hat{k},\ \vec{B} = B_0\hat{i}$
(3) $\vec{E} = E_0\hat{j},\ \vec{B} = B_0\hat{i}$ (4) $\vec{E} = E_0\hat{j},\ \vec{B} = B_0\hat{k}$

Scan or tap for the full solution

Q.6 The electric field part of an electromagnetic wave in a medium is represented by $E_x = 0$; $E_y = 2.5\,\frac{N}{C}\cos\left[\left(2\pi\times10^6\,\frac{rad}{s}\right)t - \left(\pi\times10^{-2}\,\frac{rad}{m}\right)x\right]$; $E_z = 0$. The wave is [AIPMT 2009]

(1) moving along x direction with frequency 10^6 Hz and wavelength 100 m.
(2) moving along x direction with frequency 10^6 Hz and wavelength 200 m.
(3) moving along −x direction with frequency 10^6 Hz and wavelength 200 m.
(4) moving along y direction with frequency $2\pi \times 10^6$ Hz and wavelength 200 m.

Scan or tap for the full solution

Q.7 The electric and magnetic field of an electromagnetic wave are [AIPMT 2007]

(1) in opposite phase and perpendicular to each other

(2) in opposite phase and parallel to each other

(3) in phase and perpendicular to each other

(4) in phase and parallel to each other

Scan or tap for the full solution

Q.8 Which of the following rays are not electromagnetic waves? [AIPMT 2003]

(1) X-rays (2) γ-rays (3) β-rays (4) heat rays

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	**4**	**4**	**2**	**1**	**1**	**2**	**3**	**3**			