

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 $\frac{1}{\sqrt{\mu_0 \epsilon_0}}$
 (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 $\vec{E} = \hat{i} 40 \cos(kz - 6 \times 10^8 t)$ 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 $E_x = 0$;

$$E_y = 2.5 \frac{\text{N}}{\text{C}} \cos \left[\left(2\pi \times 10^6 \frac{\text{rad}}{\text{s}} \right) t - \left(\pi \times 10^{-2} \frac{\text{rad}}{\text{m}} \right) x \right];$$

 $E_z = 0$. 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 $2\pi \times 10^6 \text{ Hz}$ 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			