

# 33 Lecture - PHY101

## Important Mcqs

What is the speed of an electromagnetic wave in a vacuum?

- A)  $3 \times 10^8$  m/s
- B)  $1 \times 10^8$  m/s
- C)  $5 \times 10^8$  m/s
- D)  $2 \times 10^8$  m/s

Answer: A)  $3 \times 10^8$  m/s

Which of the following electromagnetic waves has the highest frequency?

- A) Microwaves
- B) X-rays
- C) Radio waves
- D) Infrared waves

Answer: B) X-rays

What is the relationship between the wavelength and frequency of an electromagnetic wave?

- A) Inversely proportional
- B) Directly proportional
- C) No relationship
- D) Random relationship

Answer: A) Inversely proportional

What type of electromagnetic waves are used in communication systems such as cell phones and radios?

- A) Microwaves
- B) X-rays

- C) Radio waves
- D) Infrared waves

Answer: C) Radio waves

What is the range of frequencies for visible light?

- A) 400 nm to 700 nm
- B) 100 nm to 400 nm
- C) 700 nm to 1000 nm
- D) 1 nm to 100 nm

Answer: A) 400 nm to 700 nm

What is the relationship between the electric and magnetic fields in an electromagnetic wave?

- A) They are perpendicular to each other
- B) They are parallel to each other
- C) They are randomly oriented
- D) They do not exist in electromagnetic waves

Answer: A) They are perpendicular to each other

What is the electromagnetic spectrum?

- A) The range of all possible frequencies of electromagnetic waves
- B) The range of all possible wavelengths of electromagnetic waves
- C) The range of all possible amplitudes of electromagnetic waves
- D) The range of all possible speeds of electromagnetic waves

Answer: A) The range of all possible frequencies of electromagnetic waves

Which of the following is not an electromagnetic wave?

- A) Sound waves
- B) X-rays
- C) Gamma rays

D) Ultraviolet rays

Answer: A) Sound waves

What is the energy of an electromagnetic wave proportional to?

A) Its frequency

B) Its wavelength

C) Its amplitude

D) Its speed

Answer: A) Its frequency

What is the relationship between the energy of an electromagnetic wave and its frequency?

A) Directly proportional

B) Inversely proportional

C) No relationship

D) Random relationship

Answer: A) Directly proportional