

O Level Combined Physics MCQs

Electromagnetic Waves Test 1.0

Q1

Which row correctly describes the natures of sound, light and radio waves?

| | sound | light | radio |
|-----|--------------|--------------|--------------|
| (A) | longitudinal | transverse | longitudinal |
| (B) | longitudinal | transverse | transverse |
| (C) | transverse | longitudinal | longitudinal |
| (D) | transverse | longitudinal | transverse |

Q2

Which group of electromagnetic waves is in the order of increasing wavelength?

- (A) Gamma ray → Ultra-violet → Radio wave
 (B) Gamma ray → Visible light → Ultra-violet
 (C) Microwave → Ultra-violet → X-ray
 (D) Visible light → Infra-red → X-ray

Q3

An X-ray is used in medical examination of bones because

- A it can travel very fast.
 B it does not make any sound.
 C it has a high frequency.
 D it is sensitive to heat.

Q4

Which of the following shows the correct uses of X-rays, microwaves and infra-red radiation?

| | <u>X-rays</u> | <u>microwaves</u> | <u>infra-red radiation</u> |
|---|------------------|-------------------|----------------------------|
| A | body check | communication | burglar alarm |
| B | Radiotherapy | radar | checking banknotes |
| C | cutting of metal | sunbed | sterilization of water |
| D | Radiotherapy | fluorescence | cooking |

Q5

Radio waves, visible light and X-rays are all part of the electromagnetic spectrum.
 What is the correct order of decreasing wavelength?

| | longest wavelength \longrightarrow shortest wavelength | | |
|----------|--|---------------|---------------|
| A | microwaves | visible light | X-rays |
| B | microwaves | X-rays | radio waves |
| C | X-rays | radio waves | visible light |
| D | X-rays | visible light | radio waves |

Q6

The table shows the electromagnetic spectrum of the electromagnetic waves.

| | | | | | | |
|------------|----------|----------|----------|----------|--|-------------|
| Gamma Rays | A | B | C | D | | Radio Waves |
|------------|----------|----------|----------|----------|--|-------------|

Which of the waves (**A**, **B**, **C** or **D**) is used in sunbeds and sterilising of medical equipment?

Q7

From the electromagnetic spectrum shown, compare the wavelength, frequency and speed of *P* and *Q* in a vacuum.

| | | | |
|-------------|----------|----------|----------|
| ultraviolet | <i>P</i> | infrared | <i>Q</i> |
|-------------|----------|----------|----------|

| | wavelength | frequency | speed |
|----------|-------------------------|-------------|-------------|
| A | $\lambda_P < \lambda_Q$ | $f_P > f_Q$ | $v_P > v_Q$ |
| B | $\lambda_P > \lambda_Q$ | $f_P < f_Q$ | $v_P < v_Q$ |
| C | $\lambda_P < \lambda_Q$ | $f_P > f_Q$ | $v_P = v_Q$ |
| D | $\lambda_P > \lambda_Q$ | $f_P < f_Q$ | $v_P = v_Q$ |

Q8

Which of the following electromagnetic waves is commonly used to sterilise medical equipment?

- | | |
|----------------------|------------------------|
| A infra-red | B microwaves |
| C ultraviolet | D visible light |

Q9

Which electromagnetic wave could be used to detect forgery?

- | | |
|--------------------------------|----------------------|
| A infrared radiation | C x - ray |
| B ultraviolet radiation | D radio waves |

Q10

Which of the following has the shortest frequency?

- | | |
|------------------------|-----------------------|
| A Visible light | B X-ray |
| C Gamma ray | D Ultra-violet |

Answers

Electromagnetic Waves Test 1.0

Q1 B

Q2 A

Q3 C

Q4 A

Q5 A

Q6 B

Q7 C

Q8 C

Q9 B

Q10 A

DANYAL
EDUCATION

DANYAL
EDUCATION

DANYAL
EDUCATION

DANYAL
EDUCATION

DANYAL
EDUCATION