

**1. June/2022/Paper\_11/No.24**

Which part of the electromagnetic spectrum is used by a remote controller for a television?

- A infrared waves
- B microwaves
- C radio waves
- D visible light

**2. June/2022/Paper\_11/No.25**

Which statement correctly compares radio waves and X-rays?

- A Radio waves have a longer wavelength and a greater speed in a vacuum.
- B Radio waves have a longer wavelength and the same speed in a vacuum.
- C Radio waves have a shorter wavelength and a greater speed in a vacuum.
- D Radio waves have a shorter wavelength and the same speed in a vacuum.

**3. June/2022/Paper\_12/No.24**

Microwaves, green light and infrared are three types of electromagnetic radiation.

What is their order when listed by wavelength from the shortest wavelength to the longest?

- A green light → infrared → microwaves
- B green light → microwaves → infrared
- C infrared → green light → microwaves
- D microwaves → infrared → green light

**4. June/2022/Paper\_12/No.25**

Which statement correctly compares radio waves and X-rays?

- A Radio waves have a longer wavelength and a greater speed in a vacuum.
- B Radio waves have a longer wavelength and the same speed in a vacuum.
- C Radio waves have a shorter wavelength and a greater speed in a vacuum.
- D Radio waves have a shorter wavelength and the same speed in a vacuum.

5. June/2022/Paper\_13/No.24

Which statement correctly compares radio waves and X-rays?

- A Radio waves have a longer wavelength and a greater speed in a vacuum.
- B Radio waves have a longer wavelength and the same speed in a vacuum.
- C Radio waves have a shorter wavelength and a greater speed in a vacuum.
- D Radio waves have a shorter wavelength and the same speed in a vacuum.

6. June/2022/Paper\_21/No.26

Which part of the electromagnetic spectrum is used by a remote controller for a television?

- A infrared waves
- B microwaves
- C radio waves
- D visible light

7. June/2022/Paper\_21/No.27

Which statement correctly compares radio waves and X-rays?

- A Radio waves have a longer wavelength and a greater speed in a vacuum.
- B Radio waves have a longer wavelength and the same speed in a vacuum.
- C Radio waves have a shorter wavelength and a greater speed in a vacuum.
- D Radio waves have a shorter wavelength and the same speed in a vacuum.

8. June/2022/Paper\_22/No.26

Which type of waves are produced by a television remote controller?

- A infrared waves
- B radio waves
- C ultraviolet waves
- D visible light

9. June/2022/Paper\_22/No.27

Which statement correctly compares radio waves and X-rays?

- A Radio waves have a longer wavelength and a greater speed in a vacuum.
- B Radio waves have a longer wavelength and the same speed in a vacuum.
- C Radio waves have a shorter wavelength and a greater speed in a vacuum.
- D Radio waves have a shorter wavelength and the same speed in a vacuum.

10. June/2022/Paper\_23/No.27

Which statement correctly compares radio waves and X-rays?

- A Radio waves have a longer wavelength and a greater speed in a vacuum.
- B Radio waves have a longer wavelength and the same speed in a vacuum.
- C Radio waves have a shorter wavelength and a greater speed in a vacuum.
- D Radio waves have a shorter wavelength and the same speed in a vacuum.

11. June/2022/Paper\_23/No.30

A student compares the wavelength and uses of infrared waves with microwaves.

Which row is correct?

	wavelength of infrared compared to microwaves	use of infrared waves
A	longer	intruder alarms
B	longer	satellite television
C	shorter	intruder alarms
D	shorter	satellite television

12. June/2022/Paper\_31/No.7(c)

(c) (i) State the name of **one** type of electromagnetic wave with a wavelength shorter than that of visible light.

..... [1]

(ii) State **one** use of the type of wave you have given in (c)(i).

..... [1]

(a) Fig. 6.1 shows the main regions of the electromagnetic spectrum. Two of the regions are unlabelled.

radio waves	.....	.....	visible light	ultraviolet rays	X-rays	$\gamma$ (gamma)-rays
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Fig. 6.1

(i) Complete the labelling in Fig. 6.1. Write the name of the radiation in each unlabelled region. [2]

(ii) State the name of **one** region of the electromagnetic spectrum that has wavelengths shorter than those of ultraviolet rays.

..... [1]

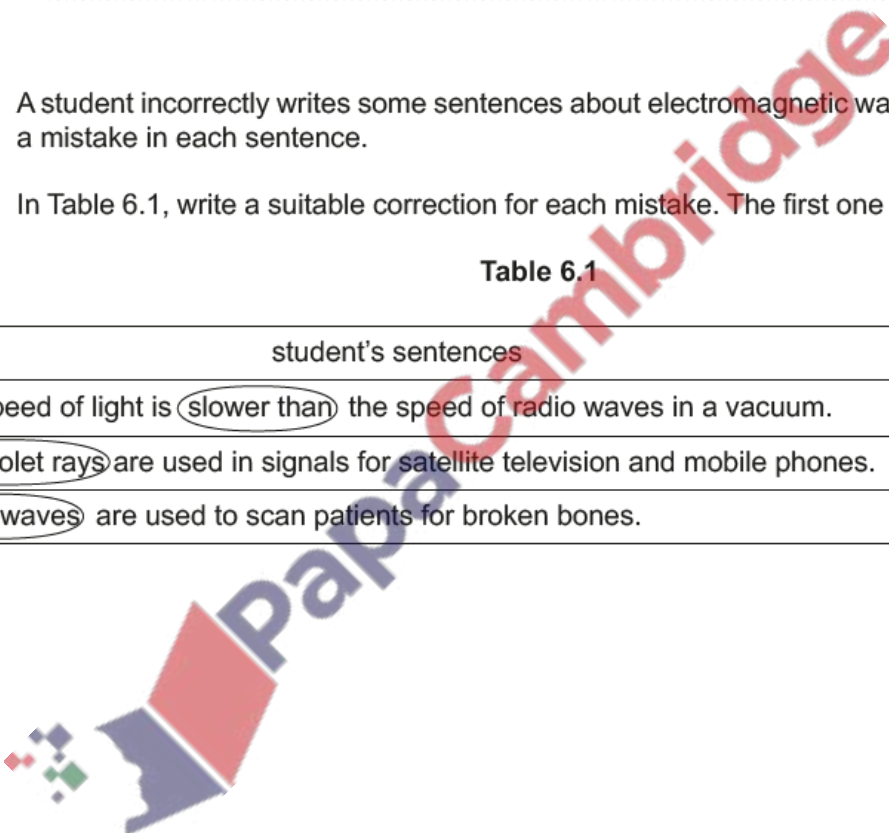
(c) A student incorrectly writes some sentences about electromagnetic waves. His teacher circles a mistake in each sentence.

In Table 6.1, write a suitable correction for each mistake. The first one has been done for you.

Table 6.1

student's sentences	correction
The speed of light is <u>slower than</u> the speed of radio waves in a vacuum.	the same as
<u>Ultraviolet rays</u> are used in signals for satellite television and mobile phones.	
<u>Radio waves</u> are used to scan patients for broken bones.	

[2]



This question is about the following **four** types of wave.

**infrared                      microwaves                      ultrasound                      radio waves**

(a) Answer the questions, choosing words from this list.

(i) State which of the types of wave are electromagnetic.

..... [1]

(ii) State which type of electromagnetic wave has the longest wavelength.

..... [1]

(iii) State **two** types of wave that can travel through a vacuum.

..... [1]

(iv) State which of the types of wave is used to produce an image of an unborn baby.

..... [1]

(b) State **two** uses for infrared waves.

1. ....

2. ....

[2]

(c) Indicate whether the types of wave in Table 7.1 are transverse or longitudinal.

Show your answer for each type of wave by placing a tick (✓) in **one** column.

Complete all the rows in Table 7.1.

**Table 7.1**

type of wave	transverse	longitudinal
infrared		
microwaves		
ultrasound		
radio waves		

[2]

[Total: 8]

15. June/2022/Paper\_42/No.5(b)

(b) Describe **one** use of X-rays in medicine.

.....  
..... [2]

