

Electromagnetic Spectrum

Total marks:16

Q1.

A person warms their hands in front of a hot fire as shown in Figure 2.



(Source: © Andreas Saldavs/Shutterstock)

Figure 2

Use words from the box to complete the following sentences.

chemical infrared radio thermal ultraviolet

(2)

The electromagnetic waves that the fire mostly emits are waves.

These waves transfer energy to the hands.

(Total for question = 2 marks)

Q2.

Figure 1 shows the parts of the electromagnetic spectrum.

gamma rays	x-rays	J	visible	K	micro-waves	L
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Figure 1

(i) Which row of the table names the parts J, K and L of the electromagnetic spectrum?

(1)

	J	K	L
<input type="checkbox"/> A	infrared	radio	ultraviolet
<input type="checkbox"/> B	radio	infrared	ultraviolet
<input type="checkbox"/> C	ultraviolet	infrared	radio
<input type="checkbox"/> D	ultraviolet	radio	infrared

(ii) All electromagnetic waves can travel in a vacuum.

Which of these is the same for all electromagnetic waves travelling in a vacuum?

(1)

- A amplitude
- B frequency
- C speed
- D wavelength

(Total for question = 2 marks)

Q3.

Figure 8 shows a section of the electromagnetic spectrum.

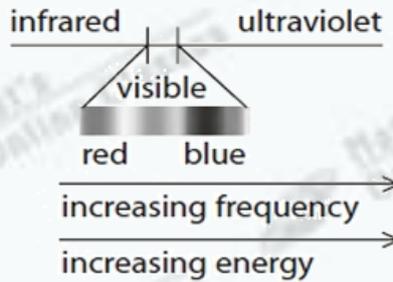


Figure 8

(i) State **one** type of electromagnetic radiation that has a higher frequency than ultraviolet.

(1)

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(ii) One star is blue and another star is red.

Explain why an astronomer expects the blue star to be hotter than the red star.

(2)

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(Total for question = 3 marks)

Q4.

Some television remote controls use infrared radiation and other remote controls use radio waves.

Explain why an infrared remote control may not switch on the television from behind an armchair but a radio wave remote control always will.

(2)

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.....

(Total for question = 2 marks)

Q6.

Some sunglasses have photochromic lenses.

Photochromic lenses are clear when the lenses are indoors but they darken in bright sunlight to reduce the effects of the sunlight.

Photochromic lenses react to ultraviolet light.

Suggest a benefit of making the lenses go dark with ultraviolet light.

(1)

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(Total for question = 1 mark)