

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

The Sun emits all types of electromagnetic waves.

Figure 1 shows the electromagnetic spectrum.

Figure 1

Radio waves	Microwaves	Infrared	Visible light	Ultraviolet	X-rays	Gamma rays
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(a) Complete the sentences.

Choose answers from the box.

frequency	mass	power
velocity	wavelength	

In a vacuum, all electromagnetic waves travel at the same _____ .

Gamma waves have the greatest _____ .

Radio waves have the greatest _____ .

(3)

(b) Explain why it is important that the Earth's atmosphere absorbs gamma rays emitted by the Sun.

(2)

(c) Some microwaves are **not** absorbed by the Earth's atmosphere.

Why is this useful?

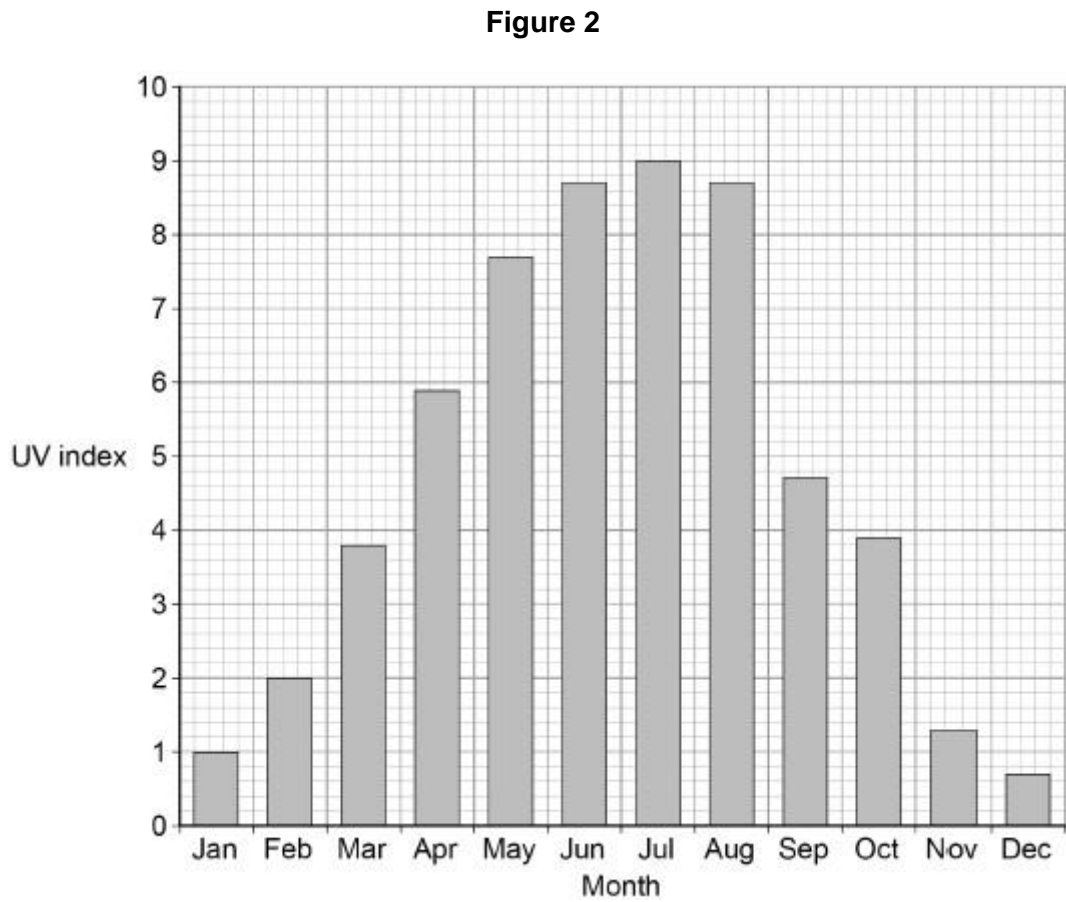
(1)

Some ultraviolet (UV) radiation from the Sun passes through the atmosphere and reaches the

surface of the Earth.

The amount of UV radiation that reaches the surface of the Earth can be measured on a scale called the UV index.

Figure 2 shows the average midday UV index in the UK for 1 year.



(d) Why is exposure to UV radiation harmful to humans?

(1)

(e) Compare the risk from UV radiation at different times of year in the UK.

Use data from **Figure 2**.

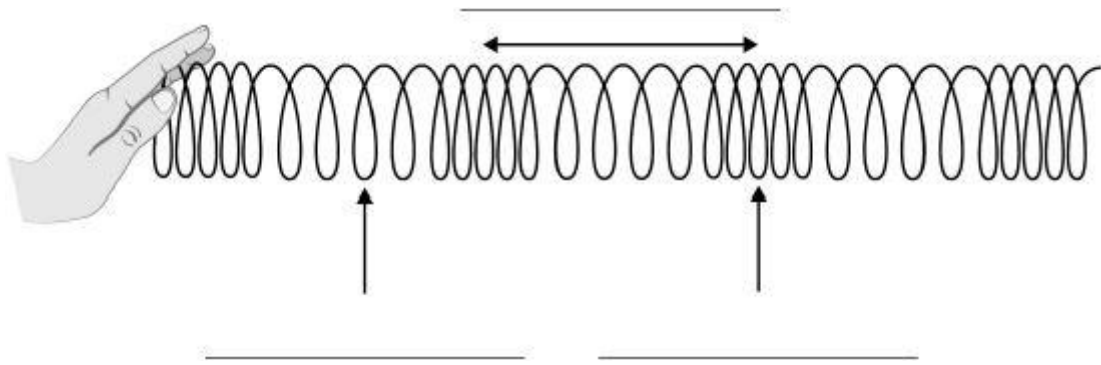
(2)

(Total 9 marks)

Q2.

Figure 1 shows a slinky spring used to model a sound wave.

Figure 1



(a) Label the arrows on **Figure 1**

Choose the answers from the box.

amplitude	compression	frequency
rarefaction	wavelength	

(3)

(b) What type of wave is a sound wave?

Tick **one** box.

electromagnetic

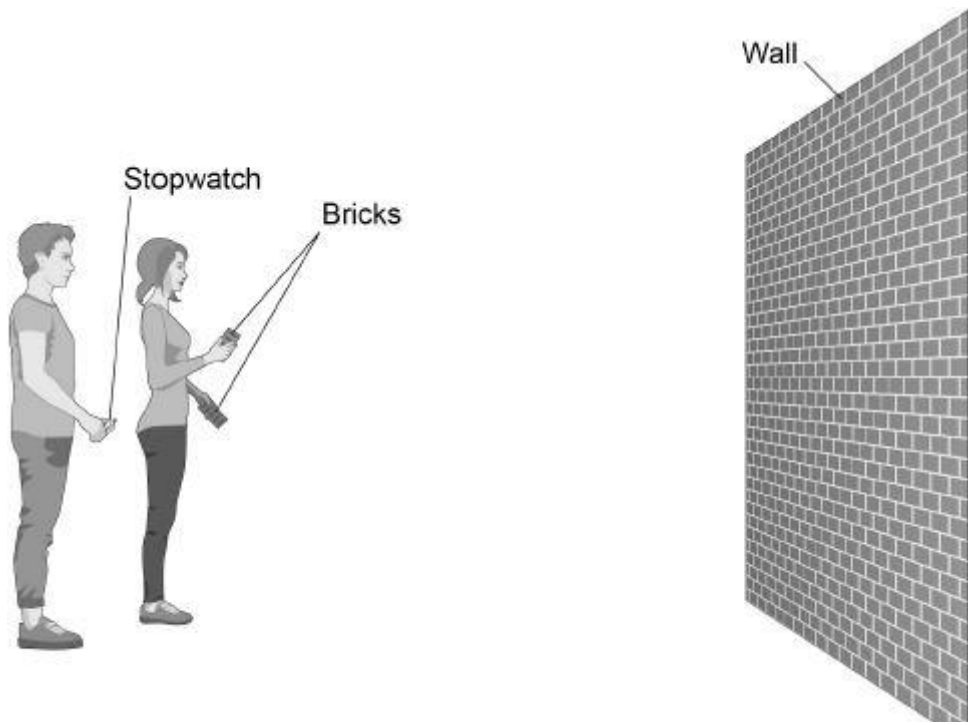
longitudinal

transverse

(1)

(c) **Figure 2** shows two students measuring the speed of sound in air.

Figure 2



One student bangs two bricks together.

The sound wave produced is reflected from the wall and travels back to the students.

Describe how they can determine the speed of sound.

(4)
(Total 8 marks)