

## P6 Homework 2

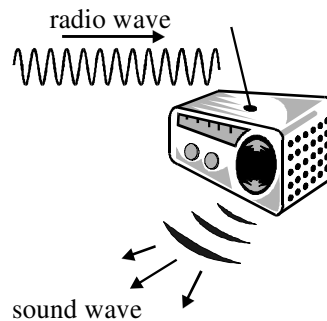
1. The boxes show the names of some of the waves in the electromagnetic spectrum and their uses.

Draw **one** straight line from each electromagnetic wave to its use.

infra-red	•	•	prolonging the shelf life of food
ultraviolet	•	•	electric toaster
gamma rays	•	•	mobile phones
microwaves	•	•	detecting forged five pound notes
		•	measuring the depth of the sea

(Total 4 marks)

2. The diagram shows how two different waves are involved when listening to a radio.

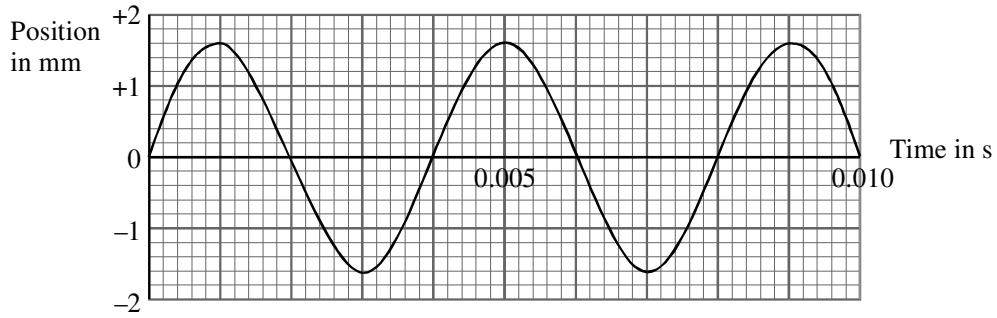


- (a) Complete the sentences that compare the radio wave and the sound wave.

(i) The frequency of the radio wave is ..... than the frequency of the sound wave. (1)

(ii) The radio wave is transverse; the sound wave is ..... (1)

- (b) The graph shows how the position of the loudspeaker cone changes when it is reproducing a sound of frequency 250 Hz.



- (i) Which word **best** describes the movement of the loudspeaker cone?  
Circle the word of your choice.

amplification                  gyration                  rotation                  vibration (1)

- (ii) Use the graph to write down the **amplitude** of the wave motion.

..... mm (2)

- (iii) Use the graph to write down the time taken to complete one cycle of the wave motion.

..... s (1)

- (c) The amplitude and frequency of the movement of the loudspeaker cone are both **reduced**.

- (i) Sketch on the grid in part (b) a graph that shows the loudspeaker cone moving with reduced amplitude and frequency. (2)

- (ii) Give **two** ways in which the sound changes when the loudspeaker cone moves with reduced amplitude and frequency.

1 .....

2 .....

(2)  
(Total 10 marks)

3. (a) The table shows some information about the electromagnetic spectrum.

low frequency  $\xrightarrow{\hspace{10em}}$  high frequency

radio waves	<b>A</b>	infra-red	visible light	<b>B</b>	X-rays	gamma rays
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(i) Name the radiation at **A**.

.....

(1)

(ii) Name the radiation at **B**.

.....

(1)

(iii) State **one** use of X-rays.

.....

(1)

(iv) State **one** harmful effect of X-rays.

.....

(1)

(v) State **two** properties that all electromagnetic waves have in common.

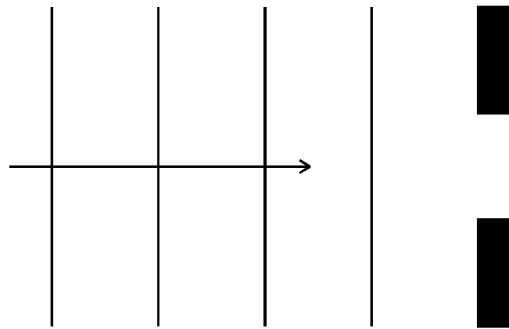
1 .....

2 .....

(2)

(b) The diagram shows water waves approaching a gap.

The wavelength of the waves is 1.5 cm. The gap is also 1.5 cm wide.



Complete the diagram to show the diffracted waves produced by the gap.

(3)

- (c) In the 17th and 18th centuries, scientists debated whether light behaved as waves or particles.

Diffraction is a wave property.

When light is shone onto a 1.5 cm gap, no diffraction is observed.

Suggest **two** conclusions that could be drawn from this observation.



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.....

.....

(3)  
(Total 12 marks)

Total = /26

Grade

- 23-26 A\*
- 20-22 A
- 17-19 B
- 14-16 C
- 10-13 D
- 7-9 E

To improve I need to focus on

1

2