

Name of the Student: _____

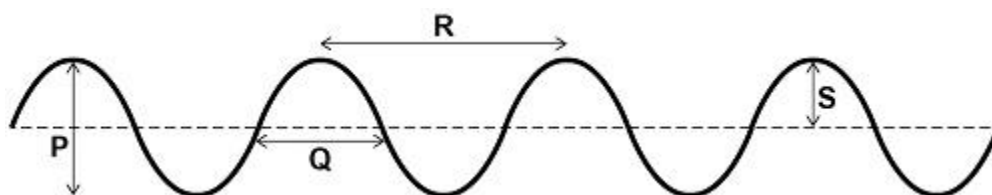
Max. Marks : 18 Marks

Time : 18 Minutes

Q1.

Figure 1 shows some waves.

Figure 1



- (a) Which arrow represents the wavelength of the waves?

Tick (✓) **one** box.

P	☐
Q	☐
R	☐
S	☐

(1)

- (b) Which arrow represents the amplitude of the waves?

Tick (✓) **one** box.

P	☐
Q	☐
R	☐
S	☐

- (c) The waves have a frequency of 0.20 hertz.

Calculate the period of the waves.

Use the equation:

$$\text{period} = \frac{1}{\text{frequency}}$$

Period = _____ s

(2)

- (d) The frequency of the waves is increased. The speed of the waves stays the same.

What happens to the wavelength of the waves?

Tick (✓) **one** box.

The wavelength decreases.

☐

The wavelength increases.

☐

The wavelength stays the same.

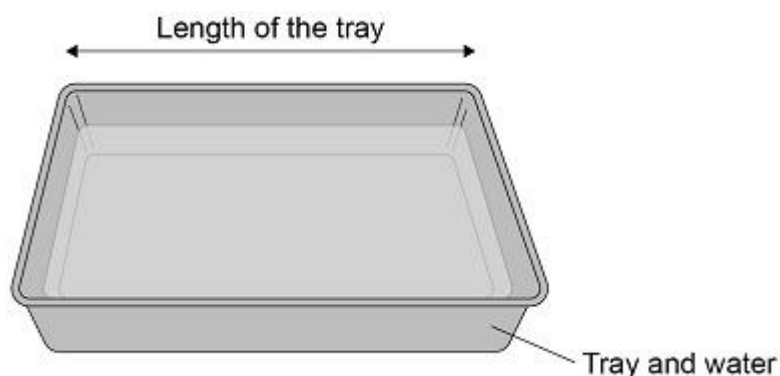
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(1)

A student investigated how the speed of water waves is affected by the depth of water in a tray.

Figure 2 shows some water in a rectangular tray.

Figure 2



The student lifted one end of the tray and then dropped it.

This made a wave which travelled the length of the tray.

(e) The student measured the length of the tray.

What else should the student measure in order to calculate the speed of the wave?

Tick (✓) **one** box.

Area of the bottom of the tray

☐

Depth of water in the tray

☐

Temperature of the water in the tray

☐

Time taken by the wave to travel the length of the tray

☐

(1)

(f) What was the independent variable in this investigation?

Depth of water

☐

Length of tray

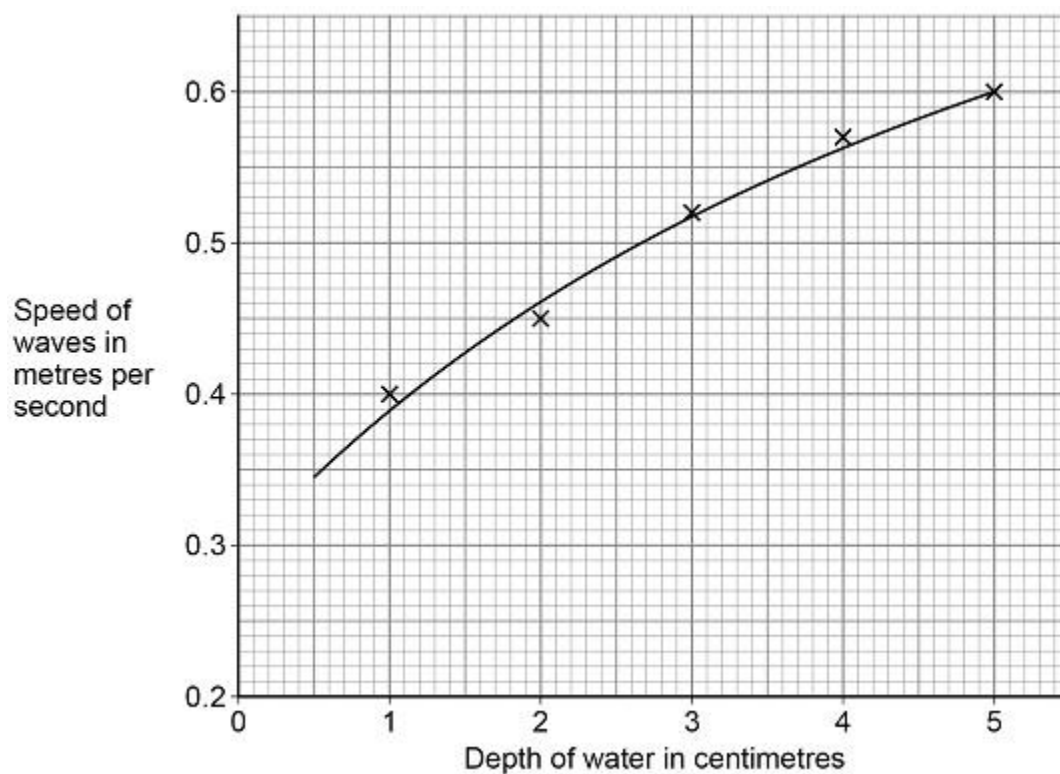
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Speed of waves

☐

(1)

The graph below shows the results.



- (g) Give **one** conclusion that can be made from the graph.

(1)

- (h) What was the speed of a wave when the depth of water was 2.5 cm?

Speed of wave = _____ m/s

(1)

(Total 9 marks)

Q2.

- (a) Visible light is used for communications.

Which other parts of the electromagnetic spectrum are used for communications?

Tick (✓) **two** boxes.

Gamma rays

☐

Microwaves

☐

Radio waves

☐

Ultraviolet

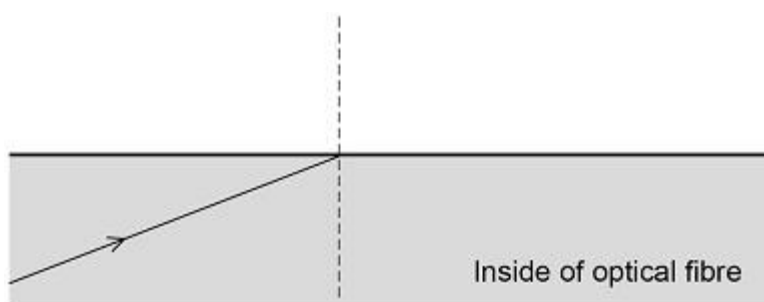
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X-rays

☐

(2)

The diagram below shows a ray of light in an optical fibre.



- (b) What is the name given to the dotted line on the diagram?

(1)

- (c) Where the ray of light touches the edge of the optical fibre it is reflected.

Draw the reflected ray on the diagram above.

(2)

- (d) Optical fibres need to be able to bend around corners without breaking.

Suggest the property that optical fibres must have to allow them to bend around corners.

(1)

- (e) The appearance of visible light can change when it interacts with different objects.

Complete the sentences.

Choose the answers from the box.

Each answer may be used once, more than once or not at all.

absorbed	reflected	refracted	transmitted
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When white light is incident on a green filter, only green light passes through the filter.

This is because green light is _____ by the filter.

All other colours of light are _____ by the filter.

When red light shines on a blue object the red light is _____.

(3)

(Total 9 marks)