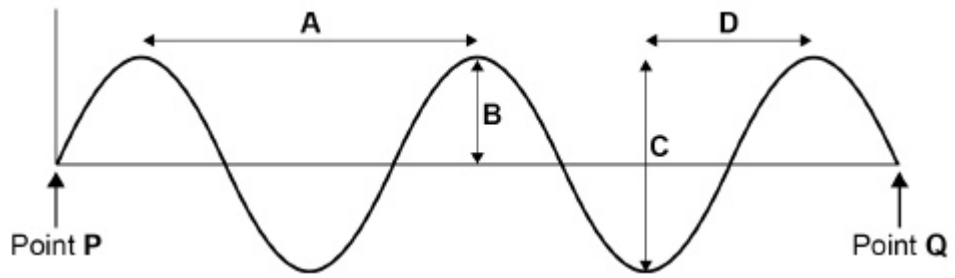


**Q1.**

The diagram shows a wave.



- (a) Which arrow shows the amplitude of the wave?

Tick **one** box.

A  B  C  D

(1)

- (b) Which arrow shows the wavelength of the wave?

Tick **one** box.

A  B  C  D

(1)

- (c) It takes 0.5 seconds for a wave in the diagram to travel from point **P** to point **Q**.

Calculate the frequency of the waves shown in the diagram.

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Frequency = \_\_\_\_\_ Hz

(2)

- (d) What type of wave is sound?

Tick **one** box.

Electromagnetic

Longitudinal

Transverse

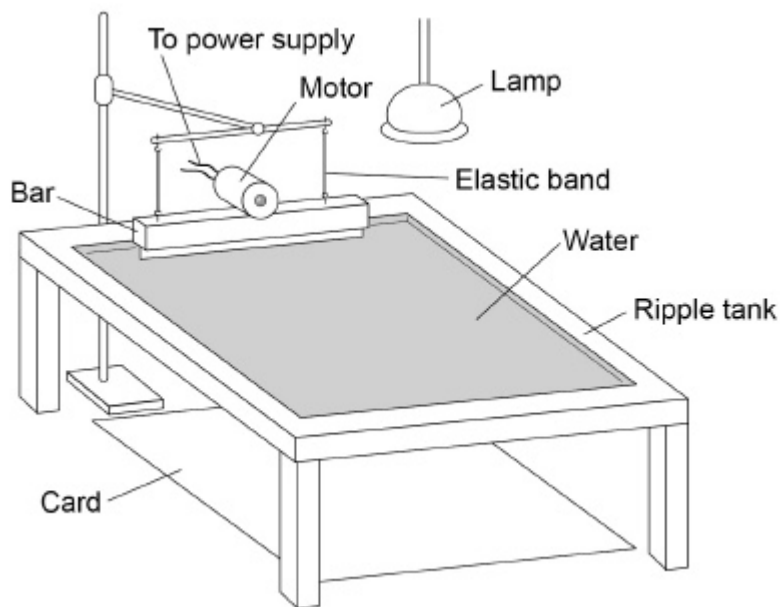
(1)

**Q2.**

A group of students investigate the features of waves.

**Figure 1** shows some of the equipment they use.

**Figure 1**



- (a) Write the equation which links frequency, wavelength and wave speed.

\_\_\_\_\_

(1)

- (b) The students want to determine the wave speed of water waves in the ripple tank.

Describe a method the students could use.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(4)

(Total 5 marks)

## Mark schemes

### Q1.

- (a) **B** 1
- (b) **A** 1
- (c)  $\frac{2.5 \text{ (waves)}}{0.5 \text{ (s)}}$  1
- 5(.0)(Hz) 1
- (d) longitudinal 1

[5]

### Q2.

- (a) wave speed = frequency  $\times$  wavelength  
*allow  $v = f\lambda$*  1
- (b)

<b>Level 2:</b> The design/plan would lead to the production of a valid outcome. All key steps are identified and logically sequenced.	3-4
<b>Level 1:</b> The design/plan would not necessarily lead to a valid outcome. Most steps are identified, but the plan is not fully logically sequenced.	1-2
No relevant content	0
<b>Indicative content</b> <ul style="list-style-type: none"> <li>• adjust the bar so that it just touches the surface of the water</li> <li>• adjust motor to produce low frequency wave</li> <li>• adjust the lamp until the pattern is seen clearly on the card underneath</li> <li>• place a metre rule at right angles to the waves</li> <li>• measure the length of a number of waves (minimum 3 waves)</li> <li>• divide the length by the number of waves to give wavelength</li> </ul>	

<ul style="list-style-type: none"><li>• count the number of waves passing a point in a given time</li><li>• divide the number of waves counted by the time to give the frequency</li></ul>	
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4

[5]