# Waves in Air-Fluids-Solids

## Mark Scheme

| | |
|---|---|
| **Level** | GCSE (9-1) |
| **Subject** | Combined Science: Trilogy - Physics |
| **Exam Board** | AQA |
| **Topic** | 6.6 Waves |
| **Sub-Topic** | Waves in Air-Fluids-Solids |
| **Difficulty Level** | Gold Level |
| **Booklet** | Mark Scheme |

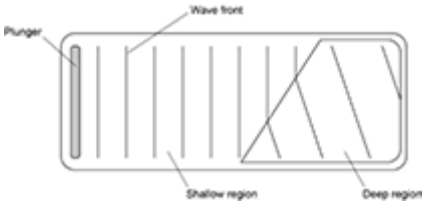
**Time Allowed:** **18 minutes**

**Score:** **/17**

**Percentage:** **/100**

**Grade Boundaries:**

**M1.**(a)




*lines should be further apart with the bottom of the wave fronts further to the right than the top*

**1**

(b) they will speed up

**1**

so wave (fronts) move further apart

**1**

(c) longitudinal waves:

- the oscillations are parallel to the direction of energy transfer

**1**

- show areas of compression and rarefaction

**1**

transverse waves:

- the oscillations / movement are perpendicular to the direction of energy transfer.

**1**

(d) place a floating object / plastic duck on the surface of the water

**1**

it will stay in the same place **or** only bob up and down if the water doesn't move

**1**

(e) 0.42 = 1 / f

**1**

f = 2.38

**1**

v = 2.38 × 0.34

**1**

= 0.809

*allow 0.809 with no working shown for **4** marks*

**1**

*incorrect sig. figs max **3** marks*

m / s

*correct unit*

**1**

**[13]**

**M2.** (a) changes the sound wave(s)

to a varying **or** changing (electric) potential difference **or** p.d. **or** voltage **or** current **or** to an irregular alternating current or a.c. **or** transfers sound energy to electrical energy (1) mark is vibrations **or** pulses **or** of sound **or** in air become electrical waves

*do not credit just 'to electricity' **or** 'to a.c'*

**2**

(b) (i) decrease **or** reduce the amplitude

*accept less amplitude nothing else added*

**1**

(ii) increase the frequency **or** decrease

wavelength

*accept higher frequency nothing else added*

1

**[4]**