**Name of the Student**:_____
**Max. Marks : 18 Marks** **Time : 18 Minutes**

Mark Schemes

## Q1.

(a) (i) a horizontal distance indicated and labelled

*gains 1 mark*

**but**
horizontal distance indicated between identical points on adjacent waves (to within 3-4mm) and labelled

*gains 2 marks*

**2**

(ii) peak ↔ trough indicated*

*gains 1 mark*

**but**
peak / trough ↔ mean indicated*

*(* to within 1-2mm either end)*

*gains 2 marks*
*(allow 1 mark if both lines unlabelled or 2 marks if both lines accurately drawn and unlabelled)*

**2**

(b) • 1.5

• hertz / Hz **or** (waves / cycles) per second

*for 1 mark each*
*(do not allow wavelength / hertz per second)*

**2**

**[6]**

## Q2.

(a) one of the areas where particles are spread out labelled R

**1**

(b) parallel

**1**

(c) 340 (m / s)

*allow **1** mark for correct substitution*
*i.e. speed = 400 × 0.85 provided that no subsequent steps are shown*

**2**

**[4]**

## Q3.

(a) (i) a ray drawn leaving the block parallel to the incident ray

*straight, continuous line judged by eye*

*do **not** accept a ray of light with an arrow towards the block*

**1**

(ii) normal

**1**

(b) (i) a smooth curve drawn through the points

**1**

(ii) as the angle of incidence increases the angle of refraction increases

*allow correct description of their answer to (i)*

*ignore the angle of incidence is always larger than the angle of refraction*

**1**

it is a non-linear graph
**or**
not directly proportional

*allow a correct description of the graph / points*

**1**

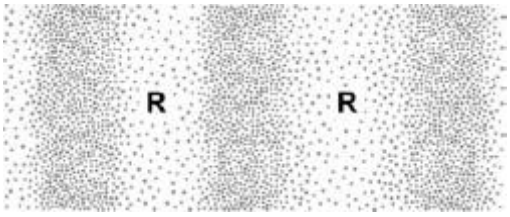
**[5]**

## Q4.

(a) same / parallel to

**1**

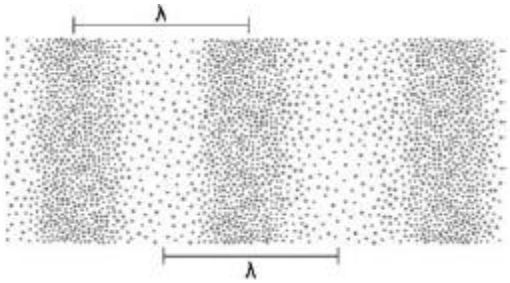
(b) (i) letter R where the particles are furthest apart




**1**

(ii) student correctly indicates one wavelength

*wavelength may be from one rarefaction to the next or from one compression to the next*




**1**

**[3]**