

Name of the Student: \_\_\_\_\_

Max. Marks : 18 Marks

Time : 18 Minutes

Mark Schemes

**Q1.**

*ideas that*  
gravity/weight (downwards)  
upwards/opposite force of water **or** upthrust  
forces are balanced

*any three for 1 mark each*

(N.B. All these ideas may be included in a short response)

(If no marks gained but candidate makes reference to forces, award 1 mark)

[3]

**Q2.**

(centre of the) Earth [not ground]  
gravity  
newtons (allow N)

*each for 1 mark*

[3]

**Q3.**

newton **or** N

metre **or** m

joules **or** J

*all three correct 2 marks*  
*two or one correct 1 mark*

[2]

**Q4.**

(a) mass

1

(b) work (done) = force (applied) × distance (moved in the direction of the force)  
*do **not** accept correctly substituted figures for this equation mark*  
*accept  $W = Fs$  **or**  $W = Fd$  **or**  $W = Fh$  (well done) = force × height*  
*mark formula independently*

1

1 000 000 × 15

$$\text{allow } 1\,000\,000 \times \frac{15}{1000}$$

1

$$= 15\,000\,000$$

$$= 15\,000$$

1

J / joules

*KJ / kilojoules*

1

$$\text{allow } 1\,000\,000 \times 1500$$

$$= 15\,00\,000\,000 \text{ for 1 mark}$$

*only – no unit mark*

*allow 3 marks for correct answer if no working / correct working is shown*

(c) **Quality of written communication**

*The answer to this question requires ideas in good English, in a sensible order with correct use of scientific terms. Quality of written communication should be considered in crediting points in the mark scheme*

*Max.4 if ideas not well expressed*

**A – B** not moving

*accept stationary **or** at rest*

1

**B - C** acceleration **or** **C – D**

acceleration

*accept increases speed / velocity accept gets faster*

1

comparison made that the acceleration

**B – C** is less than **C – D**

*accept comparison made that the  
acceleration **C-D** is greater than **B-C***

1

**D – E** constant velocity

*accept steady speed **or** at 0.4 m/s*

1

**E – F** deceleration

*accept decreases speed / velocity  
accept gets slower*

1

[10]