

## Mark schemes

1

(a) **either**

- *pan X: 1N and 1N*  
*pan Y: 2N*

**or**

- *pan X: 4N and 1N*  
*pan Y: 5N*

1 (L3)

*three weights are required for the mark*  
*units are not required for the mark*  
*the weights in pan X can be in either order*

(b) • up

*accept '↑'*  
*'X will go down' is insufficient*

1 (L3)

(c) • 3 N

1 (L3)

(d) (i) • 8 N

1 (L3)

(ii) • 5 N

*accept the answer to (di) minus the answer to (c)*  
*accept '8-3'*

1 (L4)

[5]

2

**Marks may be awarded for part (a) if the magnets are correctly labelled in part (b) and no answer is given in part (a)**

(a) • Magnet A

N S

*both poles are required for the mark*

1 (L4)

• Magnet C

S N

*both poles are required for the mark*

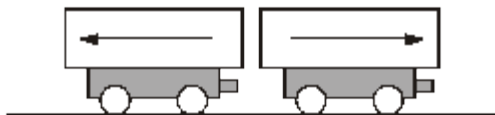
1 (L4)

- (b) • repel  
• attract

*answers must be in the correct order*  
**both** answers are required for the mark

1 (L4)

- (c) •



**both** arrows are required for the mark

1 (L4)

- (d) • it is attracted

*accept 'it gets faster'*

1 (L4)

- nothing

*accept 'it is not attracted or repelled'*

*accept 'it is not attracted'*

*accept 'it is not repelled'*

*'they stick together' is insufficient*

*do **not** accept 'it repels'*

1 (L4)

[6]

3

- (a) • it decreases

*accept 'there are fewer swings'*

*accept 'there are less'*

*'the ball swings slower **or** more slowly' is insufficient*

1 (L3)

- (b) (i) *vertical axis:*

- number of swings in 10 seconds

*accept 'number of swings' **or** 'how many swings' **or** 'swings'*

*'number' is insufficient*

1 (L4)

*horizontal axis:*

- length of string in cm

*accept 'length of string' **or** 'length' **or** 'cm'*

*'string' is insufficient*

1 (L4)

- (ii) • 13

*accept any number from 12.5 to 13.0 (inclusive)*

*accept '11' if the axes are labelled in reverse for part (bi)*

1 (L4)

(iii) • 6 ✓

*if more than one box is ticked, award no mark*

1 (L4)

(c) any **one** from

- friction
- air resistance

*accept 'drag'*

*do **not** accept 'tension'*

1 (L4)

[6]

4

(a) (i) • an arrow labelled R, to the right, drawn on the rope  
*accept a labelled arrow to the right, drawn parallel to the rope*

1 (L3)

(ii) • an arrow labelled G, vertically downwards

1 (L4)

(b) any **one** from

- snow is smoother
- snow is more slippery

*accept 'snow is slippery'*

*accept 'concrete **or** the path is rough'*

*'snow is soft' **or** 'concrete is hard' are insufficient*

1 (L4)

[3]

5

(a) gravity

*accept 'weight'*

1 (L5)

magnetic force **or** magnetism

*accept 'repulsion' **or** 'upthrust'*

*answers may be in either order*

*do **not** accept 'air resistance'*

1 (L5)

(b) (i) 12

1 (L5)

(ii) any **one** from

- the paper cup stopped moving  
*accept 'it hit the bottom'*
- the paper cup reached the bottom magnet  
*accept 'the paper cup could not go any further'*

1 (L6)

(c) any **one** from

- iron is magnetic  
*accept 'aluminium is not magnetic'*
- iron nails are attracted to a magnet  
*accept 'the rivets are not attracted to a magnet'*
- there is a magnetic force on the iron  
*do not accept 'aluminium or rivets are less magnetic'*  
*do not accept 'iron or nails are more magnetic than aluminium or rivets'*

1 (L6)

[5]

6

(a) (i) any **two** from

- gravity **or** weight
- friction
- reaction  
*accept 'upthrust'*
- air resistance  
*accept 'drag'*  
*do not accept 'centrifugal force'*  
*or 'centripetal force' or 'g-force'*

2 (L6)

(ii) any **one** from

- constant speed
- steady speed
- it stays the same  
*accept 'it is the same' or 'it does not change'*

1 (L6)

- (b) friction is less  
*'it is smoother' or 'it is slippery' are insufficient* 1 (L5)
- (c) it increases  
*accept 'he goes more quickly'* 1 (L6)
- because there is less air resistance **or** friction  
*accept 'he is streamlined or aerodynamic'* 1 (L6)

[6]

7

- (a) B 1 (L5)
- (b) (i) A and C  
*accept 'lift and weight'*  
*answers may be in either order*  
**both** letters are required for the mark 1 (L5)
- (ii) D and B  
*accept A and C*  
*answers may be in either order*  
**both** letters are required for the mark 1 (L5)
- (c) (i) • Force D is greater than force B. ✓  
*if more than one box is ticked, award no mark* 1 (L6)
- (ii) • Force A is greater than force C. ✓  
*if more than one box is ticked, award no mark* 1 (L6)

[5]