Physical Quantities, Units and Measurement – 2021 O Level 5054

1. Nov/2021/Paper_11/No.1

Which quantity is a vector?

A speed

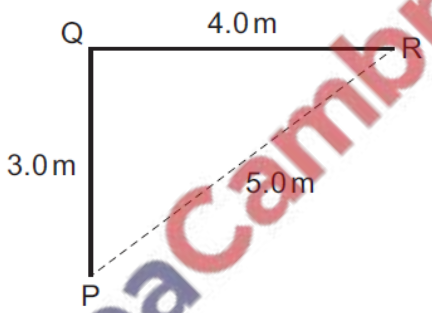
B force

C mass

D distance

2. Nov/2021/Paper_12/No.1

A boy starts at P and walks 3.0 m due north from P to Q and then 4.0 m due east from Q to R.



What is the shortest distance that he must now walk to have an overall displacement of zero?

A 3.0 m **B** 4.0 m **C** 5.0 m **D** 7.0 m

3. Nov/2021/Paper_12/No.2

A student investigates the motion of a ball falling through the air.

Which quantity is a vector?

A the diameter of the ball

B the gravitational force on the ball

C the distance from which the ball is dropped

D the speed at which the ball hits the ground

4. June/2021/Paper_11/No.1

A list of various quantities is shown.

acceleration

displacement

force

length

mass

velocity

How many of these quantities are vectors?

A 2 **B** 3 **C** 4 **D** 5

5. June/2021/Paper_11/No.2

A student determines the circumference of a football.

Which instrument gives a reading that is the circumference of the football?

A calipers

B micrometer

C rule

D tape

6. **(a)** **(i)** State the difference between a scalar quantity and a vector quantity.

.....

.....

..... [1]

(ii) State **two** examples of each type of quantity.

scalar quantity	**vector quantity**
1	1 .....
2	2 .....

[2]

(b) Fig. 1.1 shows the direction and size of two vectors P and Q.

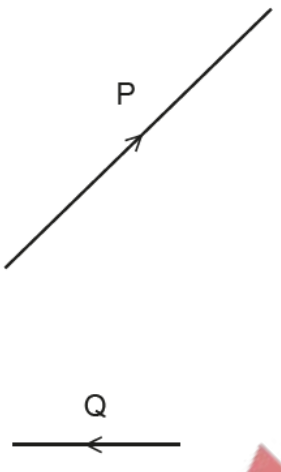


Fig. 1.1

In the space next to Fig. 1.1, draw a labelled vector diagram to show the resultant vector obtained by adding vector P to vector Q.

Draw vector P, vector Q and the resultant vector to the same scale as in Fig. 1.1.

[2]

[Total: 5]