**1.** 0625/31/O/N/19/No.2

Four students P, Q, R and S each attempt to measure the time period (the time for one complete oscillation) of a pendulum. The arrows in Fig. 2.1 show the movements of the pendulum that each student times.

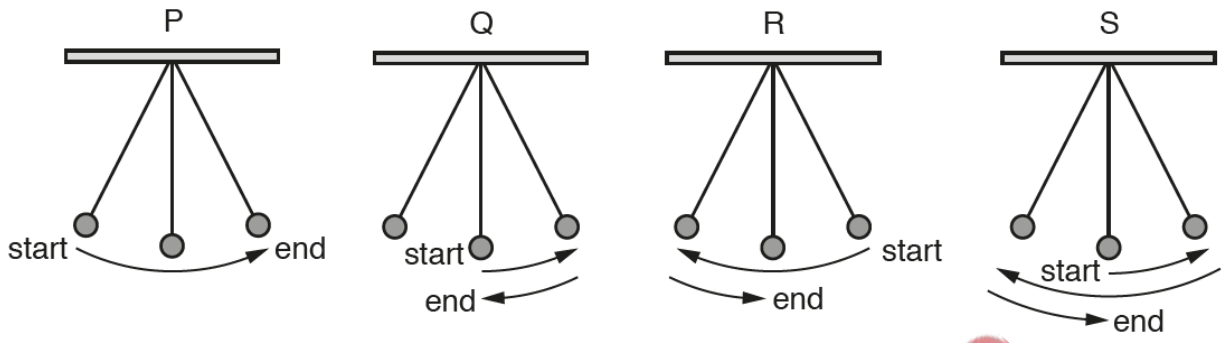


**Fig. 2.1**

**(a)** State the student who has chosen the correct movement for one period of a pendulum.

student ..... [1]

**(b)** Another student uses a stopwatch to measure the time taken for 50 periods of a pendulum. Fig. 2.2 shows the time taken on the stopwatch.


**Fig. 2.2**

Calculate the time for one period of the pendulum. Give your answer to 3 significant figures.

time for one period = ..... s [3]

**(c)** The student measures the displacement of the pendulum bob from its rest position. The displacement is 16.5 cm, as shown in Fig. 2.3.

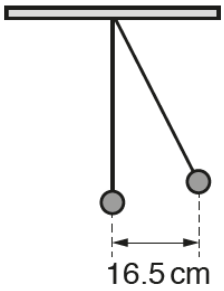


**Fig. 2.3**

State the displacement in millimetres.

displacement = ..... mm [1]

[Total: 5]

**2.** 0625/33/O/N/19/No.1

**(a)** A student uses a stopwatch in a timing experiment.

Fig. 1.1 shows the stopwatch readings.

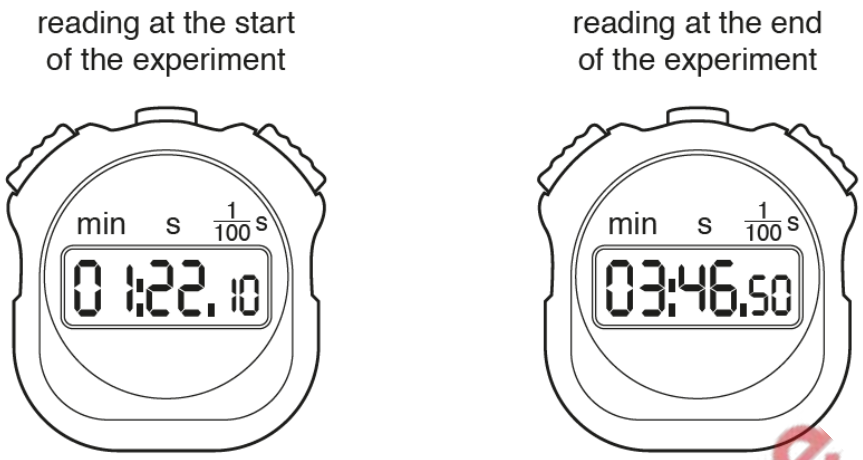


**Fig. 1.1**

Calculate the time interval between the two readings.

time interval = ..... s [2]

**(b)** A device has a light-emitting diode (LED) that flashes briefly at regular intervals.

Describe how to determine accurately the average time for each interval, using a stopwatch.

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..... [4]

[Total: 6]