

O Level Pure Physics MCQs

Physical Quantities, Units and Measurements Test 1.0

Q1

What is the correct order of magnitude for the diameter of an atom and for the diameter of the Earth?

	diameter of atom	diameter of Earth
A	0.1 nm	10 Mm
B	0.1 nm	10 Gm
C	0.1 μm	10 Mm
D	0.1 μm	10 Gm

Q2

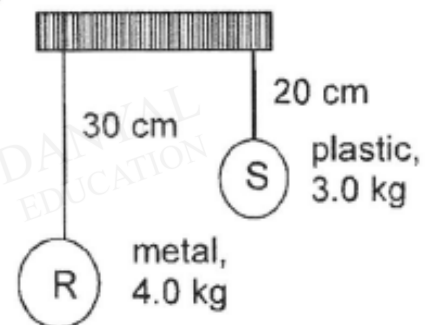
A student measures the diameter of a pen with a ruler. How could he increase the accuracy of the measurement?

- A take the average value of several measurements of the diameter along different parts of the pen using the ruler
- B take the average value of several measurements of the diameter along different parts of the pen using vernier calipers with zero error
- C take the average value of several measurements of the diameter along different parts of the pen using vernier calipers without zero error
- D use a micrometer with zero error and take one value of the diameter

Q3

The diagram shows two different pendulums R and S hung from a horizontal rod. Which of the following statements is **true**?

- A R has a shorter period as it has a greater density.
- B R has a shorter period as it is larger in size.
- C S has a shorter period as it has a smaller mass.
- D S has a shorter period as it is shorter.



Q4

Fig. 1.1 shows the zero error of a pair of vernier calipers and Fig. 1.2 shows the measurement of the diameter of a copper rod.

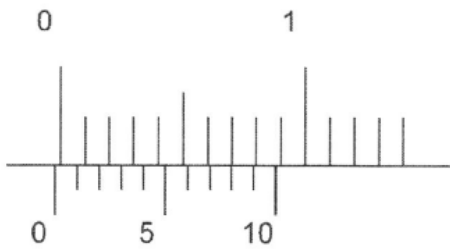


Fig. 1.1

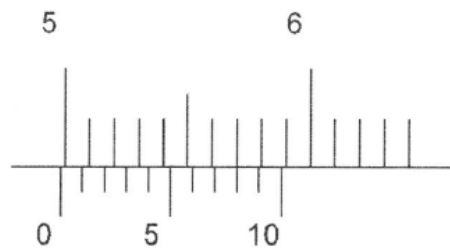


Fig. 1.2

Which of the following sets of data is correct?

	zero error / cm	observed reading / cm	actual diameter / cm
A	-0.02	4.98	4.96
B	-0.02	4.98	5.00
C	+0.08	5.58	5.50
D	-0.08	5.08	5.16

Q5

Which of the following represents the shortest length?

- A** 1.5×10^{12} nm **B** 1.5×10^8 μ m **C** 1.5×10^{-6} km **D** 1.5×10^{-10} Gm

Q6

Which of the following pairs of physical quantities have the same unit?

- A** weight and mass **B** force and acceleration due to gravity
C moment and torque **D** terminal velocity and acceleration

Q7

Fig. 2.1 shows part of the vernier scale on a pair of vernier calipers when no object was placed between the jaws. Fig.2.2 shows the same vernier calipers when the diameter of a rod was measured.

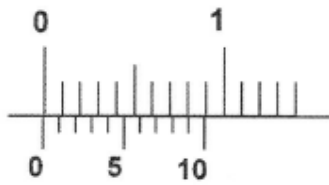


Fig. 2.1

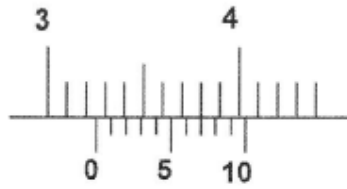


Fig. 2.2

Which is the correct reading of the diameter of the rod?

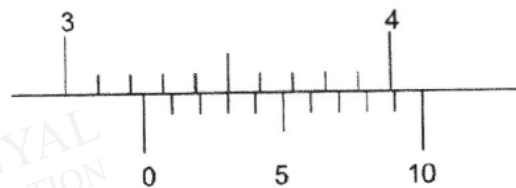
- | | | | |
|----------|---------|----------|---------|
| A | 3.35 cm | B | 3.27 cm |
| C | 3.28 cm | D | 3.29 cm |

Q8

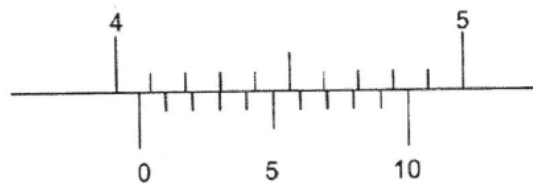
The diagrams show the readings on a vernier calliper when it is used to measure the thickness of three books, A, B and C.



Reading with nothing in between



Reading with books A and B



Reading with books A, B and C

What is the thickness of book C?

- | | | | | | | | |
|----------|---------|----------|---------|----------|---------|----------|---------|
| A | 0.78 cm | B | 0.79 cm | C | 1.21 cm | D | 1.22 cm |
|----------|---------|----------|---------|----------|---------|----------|---------|

Q9

Which quantity represents the longest length?

- A** 500 000 mm **B** $5 \times 10^7 \mu\text{m}$ **C** 0.00005 Mm **D** $5 \times 10^{-2} \text{ km}$

Q10

A vernier caliper is used to measure the diameter of a ball-bearing.

Diagram 1 shows the reading when the vernier caliper is closed.

Diagram 2 shows the reading when the ball-bearing is placed between the jaws.

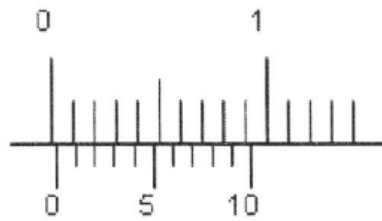


Diagram 1

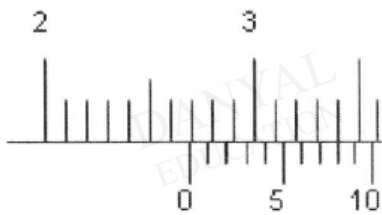


Diagram 2

What is the diameter of the ball bearing?

- A** 2.48 cm
B 2.66 cm
C 2.68 cm
D 2.88 cm

Answers

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Q1 A

Q2 C

Q3 D

Q4 B

Q5 C

Q6 C

Q7 C

Q8 B

Q9 A

Q10 B

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