

Physics 9th - Chapter 1

Physical Quantities and Measurements

MCQs Q71-Q100

PaperMCQs Standard Format

Q71. Which statement correctly describes a non-physical quantity?

Difficulty: Easy

- A) It can always be measured with an instrument
- B) It has a numerical value and an SI unit
- C) It usually depends on perception or interpretation
- D) It is always a derived quantity

Correct Answer: C) It usually depends on perception or interpretation

Explanation: Non-physical quantities such as beauty, wisdom and affection cannot be measured directly with scientific instruments.

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Q72. Why were standard units introduced?

Difficulty: Easy

- A) To make every measurement different
- B) To avoid confusion caused by different local measuring standards
- C) To remove numerical values from measurements
- D) To replace all measuring instruments

Correct Answer: B) To avoid confusion caused by different local measuring standards

Explanation: Standard units ensure that measurements made by different people and countries have the same meaning.

Source Page: 8

Q73. Which of the following is a complete measurement?

Difficulty: Easy

- A) The length is 12
- B) The length is metre
- C) The length is 12 m
- D) The length is long

Correct Answer: C) The length is 12 m

Explanation: A complete measurement must contain both a numerical value and a unit.

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Q74. Which SI base unit and symbol are correctly matched?

Difficulty: Easy

- A) Temperature - degree Celsius
- B) Amount of substance - mol
- C) Luminous intensity - lux
- D) Electric current - V

Correct Answer: B) Amount of substance - mol

Explanation: The SI base unit for amount of substance is mole, represented by mol.

Source Page: 8

Q75. Which derived unit is equivalent to metre per second?

Difficulty: Easy

- A) Unit of area
- B) Unit of volume
- C) Unit of speed
- D) Unit of pressure

Correct Answer: C) Unit of speed

Explanation: Speed is distance divided by time, so its SI unit is metre per second.

Source Page: 9

Q76. Which prefix represents 10^{-9} ?

Difficulty: Medium

- A) Micro
- B) Nano
- C) Pico
- D) Femto

Correct Answer: B) Nano

Explanation: The prefix nano, represented by n, means one-billionth or 10^{-9} .

Source Page: 10

Q77. A time interval of 2000 microseconds is equal to:

Difficulty: Medium

- A) 2 ms
- B) 20 ms
- C) 0.2 ms
- D) 200 ms

Correct Answer: A) 2 ms

Explanation: $2000 \text{ microseconds} = 2000 \times 10^{-6} \text{ s} = 2 \times 10^{-3} \text{ s} = 2 \text{ ms}$.

Source Page: 10

Q78. Which expression is written in proper scientific notation?

Difficulty: Easy

- A) 45.2×10^3
- B) 0.452×10^5
- C) 4.52×10^4
- D) 452×10^2

Correct Answer: C) 4.52×10^4

Explanation: In scientific notation, only one non-zero digit is written before the decimal point.

Source Page: 10

Q79. When a decimal point is moved to the right to write a small number in scientific notation, the exponent is:

Difficulty: Medium

- A) Positive
- B) Negative
- C) Always zero
- D) Always one

Correct Answer: B) Negative

Explanation: Moving the decimal point to the right produces a negative power of ten.

Source Page: 10

Q80. Before adding two quantities written in scientific notation, their powers of ten should be:

Difficulty: Medium

- A) Multiplied
- B) Removed
- C) Made equal
- D) Changed into negative values

Correct Answer: C) Made equal

Explanation: Quantities in scientific notation can be added or subtracted conveniently after making their exponents equal.

Source Page: 11

Q81. Which is the correct SI symbol for second?

Difficulty: Easy

- A) sec
- B) S
- C) s
- D) sc

Correct Answer: C) s

Explanation: SI unit symbols are standardized; the correct symbol for second is lowercase s.

Source Page: 11

Q82. Which unit symbol is correctly capitalized because it is named after a scientist?

Difficulty: Easy

- A) m for metre
- B) s for second
- C) N for newton
- D) kg for kilogram

Correct Answer: C) N for newton

Explanation: Symbols of units named after scientists begin with a capital letter, such as N for newton.

Source Page: 11

Q83. The least count of a metre rule is generally:

Difficulty: Easy

- A) 1 cm
- B) 1 mm
- C) 0.1 mm
- D) 0.01 mm

Correct Answer: B) 1 mm

Explanation: The smallest division marked on a standard metre rule is 1 mm.

Source Page: 12

Q84. Parallax error occurs when:

Difficulty: Easy

- A) The instrument is placed on a table
- B) The eye is not perpendicular to the scale reading
- C) A digital instrument is used
- D) The measurement is repeated

Correct Answer: B) The eye is not perpendicular to the scale reading

Explanation: Viewing a scale from an angle makes the reading appear different from its actual value.

Source Page: 12

Q85. Which part of Vernier callipers measures the internal diameter of a hollow object?

Difficulty: Medium

- A) Outside jaws
- B) Inside jaws
- C) Main scale only
- D) Ratchet

Correct Answer: B) Inside jaws

Explanation: The smaller inside jaws are designed to measure internal dimensions.

Source Page: 13

Q86. The depth of a hollow cylinder can be measured using the:

Difficulty: Medium

- A) Outside jaws of Vernier callipers
- B) Inside jaws of Vernier callipers
- C) Depth gauge of Vernier callipers
- D) Thimble of a micrometer

Correct Answer: C) Depth gauge of Vernier callipers

Explanation: The narrow projecting strip called the depth gauge or tail measures depth.

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Q87. A Vernier calliper has a main-scale reading of 3.2 cm. Its 6th Vernier division coincides, and its least count is 0.01 cm. The observed reading is:

Difficulty: Hard

- A) 3.20 cm
- B) 3.26 cm
- C) 3.80 cm
- D) 3.14 cm

Correct Answer: B) 3.26 cm

Explanation: Reading = $3.2 + (6 \times 0.01) = 3.26$ cm.

Source Page: 13

Q88. If the Vernier zero lies to the right of the main-scale zero when the jaws are closed, the zero correction is made by:

Difficulty: Hard

- A) Adding the zero error
- B) Subtracting the zero error
- C) Multiplying the reading by the zero error
- D) Ignoring the zero error

Correct Answer: B) Subtracting the zero error

Explanation: A Vernier zero on the right gives a reading greater than the actual value, so the error is subtracted.

Source Page: 14

Q89. The pitch of a micrometer screw gauge is the distance moved by its spindle during:

Difficulty: Medium

- A) Half a complete rotation
- B) One complete rotation
- C) Ten complete rotations
- D) One circular-scale division

Correct Answer: B) One complete rotation

Explanation: Pitch is the linear distance travelled by the spindle in one complete turn of the thimble.

Source Page: 14

Q90. A micrometer has a pitch of 0.5 mm and 50 circular-scale divisions. Its least count is:

Difficulty: Medium

- A) 0.1 mm
- B) 0.05 mm
- C) 0.01 mm
- D) 0.001 mm

Correct Answer: C) 0.01 mm

Explanation: Least count = $0.5 / 50 = 0.01$ mm.

Source Page: 14

Q91. What is the main function of the ratchet in a micrometer screw gauge?

Difficulty: Medium

- A) To increase the pitch
- B) To prevent excessive tightening
- C) To change its least count
- D) To measure internal diameter

Correct Answer: B) To prevent excessive tightening

Explanation: The ratchet applies uniform pressure and prevents damage or deformation caused by over-tightening.

Source Page: 15

Q92. A micrometer shows 5.5 mm on the main scale and 32 divisions on its circular scale. If its least count is 0.01 mm, the reading is:

Difficulty: Hard

- A) 5.32 mm
- B) 5.50 mm
- C) 5.82 mm
- D) 8.70 mm

Correct Answer: C) 5.82 mm

Explanation: Reading = $5.5 + (32 \times 0.01) = 5.82$ mm.

Source Page: 15

Q93. Which statement correctly distinguishes mass from weight?

Difficulty: Medium

- A) Mass is a force while weight is matter
- B) Mass measures quantity of matter while weight is a gravitational force
- C) Both are measured only with a spring balance
- D) Both have the SI unit kilogram

Correct Answer: B) Mass measures quantity of matter while weight is a gravitational force

Explanation: Mass represents the amount of matter, whereas weight is the force with which Earth attracts a body.

Source Page: 16

Q94. A physical balance determines an unknown mass by:

Difficulty: Easy

- A) Measuring its volume
- B) Comparing it with standard known masses
- C) Measuring the force of gravity directly
- D) Measuring its density

Correct Answer: B) Comparing it with standard known masses

Explanation: A physical balance compares an object's mass with known standard masses.

Source Page: 16

Q95. A mechanical stopwatch has 30 large divisions, with each divided into 10 smaller divisions. Its least count is:

Difficulty: Medium

- A) 1 s
- B) 0.5 s
- C) 0.1 s
- D) 0.01 s

Correct Answer: C) 0.1 s

Explanation: Each small division represents one-tenth of a second.

Source Page: 17

Q96. For a liquid with a concave meniscus, the volume should be read from its:

Difficulty: Medium

- A) Upper edge
- B) Lower edge
- C) Side wall
- D) Highest drop

Correct Answer: B) Lower edge

Explanation: The volume of water and similar liquids is read at the bottom of their concave meniscus.

Source Page: 17

Q97. A measuring cylinder initially contains 45 mL of water. After immersing a stone, the level rises to 68 mL. The stone's volume is:

Difficulty: Medium

- A) 23 cm³
- B) 45 cm³
- C) 68 cm³
- D) 113 cm³

Correct Answer: A) 23 cm³

Explanation: Volume of stone = 68 - 45 = 23 mL = 23 cm³.

Source Page: 18

Q98. Which error produces a consistent difference in all readings of an experiment?

Difficulty: Medium

- A) Random error
- B) Human error
- C) Systematic error
- D) Counting error

Correct Answer: C) Systematic error

Explanation: A systematic error affects repeated measurements consistently, often due to poor calibration or zero error.

Source Page: 19

Q99. What is the best method for reducing random error?

Difficulty: Easy

- A) Taking only one reading
- B) Changing the unit
- C) Taking several readings and calculating their average
- D) Ignoring environmental conditions

Correct Answer: C) Taking several readings and calculating their average

Explanation: Random variations can be reduced by obtaining multiple readings and determining their mean value.

Source Page: 19

Q100. Which statement correctly explains accuracy and precision?

Difficulty: Medium

- A) Accuracy means readings are close together only
- B) Precision means a reading is close to the true value
- C) Accuracy is closeness to the true value, while precision is closeness among repeated readings
- D) Accuracy and precision always mean exactly the same thing

Correct Answer: C) Accuracy is closeness to the true value, while precision is closeness among repeated readings

Explanation: Accurate measurements are close to the accepted value, while precise measurements are close to one another.

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