Practice Daily
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40 Most Important MCQs with Answers & Solutions

Success
Bright Future

MCQs 1 – 10

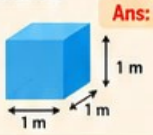
1 Which of the following is a physical quantity? **Ans: B**
- A Love
- B Mass
- C Happiness
- D Anger

2 Which of the following is a base quantity in SI system? **Ans: C**
- A Force
- B Energy
- C Length
- D Pressure

3 Which of the following is a derived quantity? **Ans: C**
- A Mass
- B Time
- C Velocity
- D Temperature

$$v = \frac{d}{t}$$

4 The SI unit of volume is **Ans: C**
- A m
- B m^2
- C m^3
- D mL



5 The SI unit of force is **Ans: C**
- A kg m s^{-1}
- B kg m^2 s^{-2}
- C kg m s^{-2}
- D kg s^{-2}

$F = ma$

6 The prefix kilo represents **Ans: B**
- A 10^{-2}
- B 10^{3}
- C 10^{-3}
- D 10^{2}

$1\ km = 10^3\ m$

7 The prefix micro (μ) represents **Ans: B**
- A 10^{-3}
- B 10^{-6}
- C 10^{-9}
- D 10^{6}

$1\ \mu m = 10^{-6}\ m$

8 The prefix nano (n) represents **Ans: B**
- A 10^{-6}
- B 10^{-9}
- C 10^{-3}
- D 10^{3}

$1\ nm = 10^{-9}\ m$

9 0.00000025 m in standard form is **Ans: C**
- A 2.5×10^{-6}
- B 2.5×10^{-8}
- C 2.5×10^{-7}
- D 25×10^{-8}

$0.0000025 = 2.5 \times 10^{-7}$

10 7.2×10^5 is equal to **Ans: B**
- A 72,000
- B 720,000
- C 7,200,000
- D 720

$7.2 \times 10^5 = 720{,}000$

MCQs 11 – 20

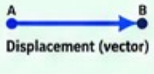
11 The number of significant figures in 0.00580 is **Ans: B**
- A 2
- B 3
- C 4
- D 5

0.00580 (5 8 0) — 3 significant figures

12 The correct number of significant figures in 120.0 is **Ans: B**
- A 3
- B 4
- C 5
- D 6

120.0 — 4 significant figures

13 Which of the following is a vector quantity? **Ans: C**
- A Speed
- B Distance
- C Displacement
- D Energy



Displacement (vector)

14 Which instrument is used to measure internal diameter of a hollow cylinder? **Ans: B**
- A Metre rule
- B Vernier calipers
- C Screw gauge
- D Measuring cylinder

15 The least count of a standard metric vernier calipers is usually **Ans: C**
- A 1 mm
- B 0.1 mm
- C 0.01 mm
- D 0.001 mm

Least count = 0.01 mm

16 Which instrument is used to measure small thickness, such as the diameter of a wire? **Ans: C**
- A Metre rule
- B Vernier calipers
- C Screw gauge
- D Measuring cylinder


Screw gauge

17 Theich type of error is caused due to wrong calibration or zero error of an instrument? **Ans: B**
- A Random error
- B Systematic error
- C Parallax error
- D Human error

Zero Error

18 Which of the following is an example of a random error? **Ans: C**
- A Zero error of an instrument
- B Parallax error
- C Fluctuation in readings due to environmental conditions
- D Wrong length of a metre rule

19 The instrument used to measure time in a laboratory is **Ans: C**
- A Barometer
- B Thermometer
- C Stopwatch
- D Ammeter


Stopwatch

20 The most suitable instrument to measure the volume of a liquid is **Ans: C**
- A Metre rule
- B Vernier calipers
- C Measuring cylinder
- D Screw gauge


Measuring cylinder

MCQs 21 – 30

21 Which of the following is a scalar quantity? **Ans: C**
- A Velocity
- B Displacement
- C Time
- D Force

22 Which physical quantity has the same SI unit as work? **Ans: C**
- A Force
- B Power
- C Energy
- D Pressure

$W = Fs$

23 The length of a pencil is 12.5 cm. The number of significant figures is **Ans: B**
- A 2
- B 3
- C 4
- D 5

24 Which prefix represents 10^{-2}? **Ans: C**
- A micro (μ)
- B milli (m)
- C centi (c)
- D deci (d)

$1\ cm = 10^{-2}\ m$

25 2000 m in kilometre is equal to **Ans: B**
- A 0.2 km
- B 2 km
- C 20 km
- D 200 km

1 km = 1000 m
2000 m = 2 km

26 Which instrument is used to measure the external diameter of a small spherical object like a ball bearing? **Ans: C**
- A Metre rule
- B Vernier calipers
- C Screw gauge
- D Measuring cylinder

27 The main source of random error is **Ans: B**
- A Faulty instrument
- B Environmental variations
- C Wrong calibration
- D Zero error

Examples: temperature, vibration, etc.

28 If a measurement is 5.0 cm, the absolute uncertainty is likely to be **Ans: B**
- A 0.5 cm
- B 0.1 cm
- C 0.01 cm
- D 1.0 cm

$5.0\ cm \pm 0.1\ cm$

29 Which of the following is NOT a base quantity in SI system? **Ans: C**
- A Length
- B Mass
- C Velocity
- D Time

Base quantities: Length, Mass, Time, Electric current, Temperature, Amount of substance, Luminous intensity

30 The prefix mega (M) represents **Ans: B**
- A 10^{3}
- B 10^{6}
- C 10^{9}
- D 10^{12}

$1\ Mm = 10^6\ m$

MCQs 31 – 40

31 Which instrument is most suitable to measure the thickness of a thin sheet of paper?
- A Metre rule
- B Vernier calipers
- C Screw gauge
- D Measuring cylinder

32 Which of the following has the largest value? **Ans: D**
- A 1 mm
- B 1 cm
- C 1 m
- D 1 km

$1\ mm = 10^{-3}\ m$
$1\ cm = 10^{-2}\ m$
$1\ m = 10^{0}\ m$
$1\ km = 10^{3}\ m$

33 The least count of a standard micrometer screw gauge is **Ans: C**
- A 1 mm
- B 0.1 mm
- C 0.01 mm
- D 0.001 mm


Least count = 0.01 mm

34 Which quantity is measured in newton (N)? **Ans: C**
- A Pressure
- B Energy
- C Force
- D Power

$F = ma$
$1\ N = 1\ kg\ m\ s^{-2}$

35 A measurement is reported as 3.40 m. The number of significant figures is **Ans: B**
- A 2
- B 3
- C 4
- D 5

3.40 m — 3 significant figures

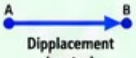
36 Which of the following is not a derived quantity? **Ans: D**
- A Area
- B Volume
- C Density
- D Mass

Area = m^2
Volume = m^3
Density = kg m^{-3}
Mass = kg (base quantity)

37 If the radius of a sphere is 3.0 cm, its volume is (nearest value) **Ans: B**
- A 36 cm^3
- B 113 cm^3
- C 108 cm^3
- D 27 cm^3

$V = \frac{4}{3}\pi r^3$
$r = 3.0\ cm$

38 Which of the following is a vector quantity? **Ans: C**
- A Mass
- B Temperature
- C Displacement
- D Density



Dipplacement (vector)

39 The correct scientific notation of 456000 is **Ans: C**
- A 4.56×10^2
- B 4.56×10^3
- C 4.56×10^5
- D 0.456×10^6

$456000 = 4.56 \times 10^5$

40 Which error can be reduced by repeated measurements and taking the mean? **Ans: B**
- A Systematic error
- B Random error
- C Parallax error
- D Zero error

Repeated measurements reduce random errors.

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Chapter 1: Physical Quantities and Measurement

With Answers & Solutions

1 **Which of the following is a physical quantity?**

A Love
B Mass
C Happiness
D Anger

Answer: B

Solution:
Mass can be measured and has a numerical value, so it is a physical quantity.

2 **Which of the following is a base quantity in SI system?**

A Force
B Energy
C Length
D Pressure

Answer: C

Solution:
Length is a base quantity. Force, energy and pressure are derived quantities.

3 **Which of the following is a derived quantity?**

A Mass
B Time
C Velocity
D Temperature

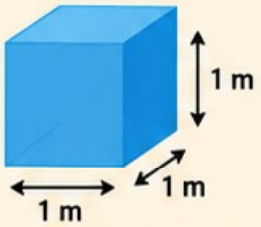
$$v = \frac{d}{t}$$

Answer: C

Solution:
Velocity is obtained from length and time, so it is a derived quantity.

4 **The SI unit of volume is**

A m
B m^2
C m^3
D mL



Answer: C

Solution:
Volume = length × width × height, so its SI unit is m^3.

5 **The SI unit of force is**

A $kg\ m\ s^{-1}$
B $kg\ m^2\ s^{-2}$
C $kg\ m\ s^{-2}$
D $kg\ s^{-2}$

$$F = ma$$

Answer: C

Solution:
From F = ma, the unit of force is $kg\ m\ s^{-2}$, called the newton (N).

6 **The prefix kilo represents**

A 10^{-2}
B 10^{3}
C 10^{-3}
D 10^{2}

$$1\ km = 10^3\ m$$

Answer: B

Solution:
The prefix kilo means 10^3. Thus $1\ km = 10^3\ m$.

7 **The prefix micro (μ) represents**

A 10^{-3}
B 10^{-6}
C 10^{-9}
D 10^{6}

$$1\ \mu m = 10^{-6}\ m$$

Answer: B

Solution:
The prefix micro (μ) means 10^{-6}. Thus $1\ \mu m = 10^{-6}\ m$.

8 **The prefix nano (n) represents**

A 10^{-6}
B 10^{-9}
C 10^{-3}
D 10^{3}

$$1\ nm = 10^{-9}\ m$$

Answer: B

Solution:
The prefix nano (n) means 10^{-9}. Thus $1\ nm = 10^{-9}\ m$.

9 **0.00000025 m in standard form is**

A 2.5×10^{-6} m
B 2.5×10^{-8} m
C 2.5×10^{-7} m
D 2.5×10^{-8} m

$$0.00000025 = 2.5 \times 10^{-7}$$

Answer: C

Solution:
Move the decimal point 7 places to the right. $0.00000025 = 2.5 \times 10^{-7}$ m

10 **7.2×10^5 is equal to**

A 72,000
B 720,000
C 7,200,000
D 7,200,000

$$7.2 \times 10^5 = 720{,}000$$

Answer: B

Solution:
$7.2 \times 10^5 = 7.2 \times 100{,}000 = 720{,}000$.

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Important MCQs (11 – 20) with Answers & Solutions

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Physics Builds a Brighter Future

11 The number of significant figures in 0.00580 is

A 2
B 3
C 4
D 5

0.00580
5 8 0
3 significant figures

Answer: B

Solution:
Leading zeros are not significant. In 0.00580, the significant digits are 5, 8 and the trailing zero. So, there are 3 significant figures.

12 The correct number of significant figures in 120.0 is

A 3
B 4
C 5
D 6

120.0
4 significant figures

Answer: B

Solution:
All non-zero digits are significant and trailing zeros after a decimal point are also significant. So, 120.0 has 4 significant figures.

13 Which of the following is a vector quantity?

A Speed
B Distance
C Displacement
D Energy

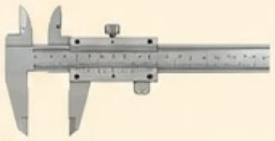
Displacement (vector)

Answer: C

Solution:
Displacement has both magnitude and direction, so it is a vector quantity.

14 Which instrument is used to measure internal diameter of a hollow cylinder?

A Metre rule
B Vernier calipers
C Screw gauge
D Measuring cylinder



Answer: B

Solution:
Vernier calipers can be used to measure external and internal diameters as well as depth.

15 The least count of a standard metric vernier calipers is usually

A 1 mm
B 0.1 mm
C 0.01 mm
D 0.001 mm

Least count = 0.01 mm

Answer: C

Solution:
In a standard metric vernier calipers, the least count is 0.01 mm.

16 Which instrument is used to measure small thickness, such as the diameter of a wire?

A Metre rule
B Vernier calipers
C Screw gauge
D Measuring cylinder


Screw gauge

Answer: C

Solution:
Screw gauge (micrometer screw gauge) is more precise and is used to measure small thickness, such as the diameter of a wire.

17 Which type of error is caused due to wrong calibration or zero error of an instrument?

A Random error
B Systematic error
C Parallax error
D Human error

Zero Error

Answer: B

Solution:
Systematic error occurs due to a definite reason, such as wrong calibration or zero error, and remains nearly constant.

18 Which of the following is an example of a random error?

A Zero error of an instrument
B Parallax error
C Fluctuation in readings due to environmental conditions
D Wrong length of a metre rule

Answer: C

Solution:
Random errors are unpredictable fluctuations in measurements, for example due to environmental conditions such as temperature, vibration, etc.

19 The instrument used to measure time in a laboratory is

A Barometer
B Thermometer
C Stopwatch

Answer: C

Solution:
A stopwatch is used to measure time intervals in

20 The most suitable instrument to measure the volume of a liquid is

A Metre rule
B Vernier calipers
C Measuring cylinder

Answer: C

Solution:
A measuring cylinder is

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MCQs (21 – 30) with Answers & Solutions

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21 Which of the following is a scalar quantity?

A Velocity
B Displacement
C Time
D Force

Answer: C

Solution:
Time has only magnitude and no direction, so it is a scalar quantity.

22 Which physical quantity has the same SI unit as work?

A Force
B Power
C Energy
D Pressure

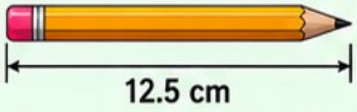
$$W = Fs$$

Answer: C

Solution:
Work and energy both have the same SI unit, which is the joule (J).

23 The length of a pencil is 12.5 cm. The number of significant figures is

A 2
B 3
C 4
D 5



Answer: B

Solution:
In 12.5, all digits (1, 2 and 5) are significant. Thus, there are 3 significant figures.

24 Which prefix represents 10^{-2}?

A micro (μ)
B milli (m)
C centi (c)
D deci (d)

$$1\ \text{cm} = 10^{-2}\ \text{m}$$

Answer: C

Solution:
The prefix centi (c) represents 10^{-2}.
Thus 1 cm = 10^{-2} m.

25 2000 m in kilometre is equal to

A 0.2 km
B 2 km
C 20 km
D 200 km

$$1\ \text{km} = 1000\ \text{m}$$
$$2000\ \text{m} = 2\ \text{km}$$

Answer: B

Solution:
Since 1 km = 1000 m, 2000 m = 2000/1000 km = 2 km.

26 Which instrument is used to measure the external diameter of a small spherical object like a ball bearing?

A Metre rule
B Vernier calipers
C Screw gauge
D Measuring cylinder

Answer: C

Solution:
A screw gauge (micrometer screw gauge) is used to measure small diameters and thicknesses with high precision.

27 The main source of random error is

A Faulty instrument
B Environmental variations
C Wrong calibration
D Zero error

Examples: temperature, vibration, etc.

Answer: B

Solution:
Random errors are caused due to unpredictable fluctuations in the environment, such as temperature, vibration, etc.

28 If a measurement is 5.0 cm, the absolute uncertainty is likely to be

A 0.5 cm
B 0.1 cm
C 0.01 cm
D 1.0 cm

$$5.0\ \text{cm} \pm 0.1\ \text{cm}$$

Answer: B

Solution:
In 5.0 cm, the last digit is in the tenths place, so the absolute uncertainty is ± 0.1 cm.

29 Which of the following is NOT a base quantity in SI system?

A Length
B Mass
C Velocity

Base quantities:
Length, Mass, Time, Electric current, Temperature, Amount of

Answer: C

Solution:
Velocity is a derived quantity ($m\,s^{-1}$), not a

30 The prefix mega (M) represents

A 10^3
B 10^6
C 10^9

$$1\ \text{Mm} = 10^6\ \text{m}$$

Answer: B

Solution:
The prefix mega (M) represents 10^6.

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MCQs (31 – 40) with Answers & Solutions

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31 **Which instrument is most suitable to measure the thickness of a thin sheet of paper?**

A Metre rule
B Vernier calipers
C Screw gauge
D Measuring cylinder

Screw gauge

Answer: C

Solution:
A screw gauge (micrometer screw gauge) is used to measure very small thicknesses accurately.

32 **Which of the following has the largest value?**

A 1 mm
B 1 cm
C 1 m
D 1 km

$$1\text{ mm} = 10^{-3}\text{ m}$$
$$1\text{ cm} = 10^{-2}\text{ m}$$
$$1\text{ m} = 10^{0}\text{ m}$$
$$1\text{ km} = 10^{3}\text{ m}$$

Answer: D

Solution:
$1\text{ km} = 10^3\text{ m}$ is the largest among the given options.

33 **The least count of a standard micrometer screw gauge is**

A 1 mm
B 0.1 mm
C 0.01 mm
D 0.001 mm

Least count = 0.01 mm

Answer: C

Solution:
The least count of a standard micrometer screw gauge is 0.01 mm ($= 10^{-5}$ m).

34 **Which quantity is measured in newton (N)?**

A Pressure
B Energy
C Force
D Power

$$F = ma$$
Unit: newton (N)
$$1\text{ N} = 1\text{ kg m s}^{-2}$$

Answer: C

Solution:
Force is measured in newton (N), where $1\text{ N} = 1\text{ kg m s}^{-2}$.

35 **A measurement is reported as 3.40 m. The number of significant figures is**

A 2
B 3
C 4
D 5

3.40 m
↑ ↑
3 significant figures

Answer: B

Solution:
In 3.40, the zero after decimal is significant.
So, there are 3 significant figures.

36 **Which of the following is not a derived quantity?**

A Area
B Volume
C Density
D Mass

$\text{Area} = \text{m}^2$
$\text{Volume} = \text{m}^3$
$\text{Density} = \text{kg m}^{-3}$
Mass = kg (base quantity)

Answer: D

Solution:
Mass is a base quantity in SI system, while area, volume and density are derived quantities.

37 **If the radius of a sphere is 3.0 cm, its volume is (nearest value)**

A 36 cm^3
B 113 cm^3
C 108 cm^3
D 27 cm^3

$$V = \frac{4}{3}\pi r^3$$
$$r = 3.0\text{ cm}$$

Answer: B

Solution:
$V = \frac{4}{3}\pi\,(3.0)^3$
$= \frac{4}{3} \times 3.14 \times 27$
$\approx 113\text{ cm}^3$.

38 **Which of the following is a vector quantity?**

A Mass
B Temperature
C Displacement
D Density

Displacement (vector)

Answer: C

Solution:
Displacement has magnitude and direction, so it is a vector quantity.

39 **The correct scientific notation of 456000 is**

A 4.56×10^2
B 4.56×10^3
C 45.6×10^4
D 0.456×10^6

$$456000 = 4.56 \times 10^5$$

Answer: C

Solution:
Move the decimal point 5 places to the left:
$456000 = 4.56 \times 10^5$.

40 **Which error can be reduced by repeated measurements and taking the mean?**

A Systematic error
B Random error
C Parallax error

Repeated measurements help to reduce random errors by taking the mean value.

Answer: B

Solution:
Random errors are unpredictable and can be reduced by taking multiple measurements and using