



Studybeesofficial

Where Minds Pollinate

**Class 9
Physics**

Chapter 1

Handwritten Notes

Follow Our Socials



studybeesofficial



studybeesofficialpak



studybeesofficialpak

4-2-2024

C.W

Tues

Chapter #1

"Physical Quantities And Measurement"

Q/ Difference b/w Base physical Quantities and Derived physical Quantities.

Base Quantities Derived Quantities

- | | |
|--|--|
| 1. The Quantities on ^{basis} base of which other Quantities are expressed - | The Quantities are obtained by multiplying or dividing ^{ing} Base Quantities - ^{are} known as ^{derived} quantities. |
| 2. There are 7 Base Quantities | They are infinite |
| 3. They are independent - | They are dependent |
| 4. <u>For Example:</u>
length, mass, time, temperature, | <u>For Example:</u>
Area, volume, speed, power, force etc. |

CW

electric current,

Q Construct a table of base quantities along with symbol and units.

SI Base Quantity		SI Base Unit.	
length	l	meter	m
mass	m	kg kilogram	kg
time	t	second	s
electric current	I	ampere	A
temperature	T	kelvin	K
amount substance	N	mole	mol
light intensity	I_x	candela	cd



• Product of two scalars is always a scalar quantity

Product of two vectors may or may not always be a vector

• Examples: length, mass, speed, distance etc

Example: force, velocity etc.

Scalars have magnitude only, while vectors have both magnitude and direction. Distance, speed, mass and energy are scalar quantities because all of these are completely described by their magnitude only where as displacement, velocity, force and acceleration are vector quantities because all of these are completely described by their magnitude as well as direction.

Vector addition: (Head to tail rule)

C.W

How vector can be added?

Vector can be added using head to tail rule. Head to tail rule can be used to add any number of vectors.

Head to Tail rule: Consider two vectors $\vec{A}$ and $\vec{B}$. Take any one of the vectors as first vector eg vector $\vec{A}$. Then draw next vector $\vec{B}$ such that its tail coincides with head of first vector $\vec{A}$. Similarly draw third vector if any with its tail coinciding with head of previous vector.

Now draw vector $\vec{R}$ such that its tail is at tail of vector $\vec{A}$ (first vector) while its head is at head of vector $\vec{B}$ (last vector).

Diagram

11/04/2024

12/04/2024

7. What Precautions should we kept in mind while taking measurement using measuring cylinder -

Ans / Precautions in Measuring volume while using measuring cylinder:-

1. Position your eye at same level as liquid surface to avoid parallax error -

2. Identify correct type of meniscus whether it is convex or concave -

For a Concave meniscus, read volume from bottom of curve where it intersects with marking -

For a Convex meniscus, read volume from top of curve where it intersects with graduated marking -

1-25-24

C.W

Thurs

Q / Differentiate b/w Mechanical and Digital Stop watch -

Mechanical
Stop Watch

Digital
Stop Watch

1. Mechanical stop watch has only 1 knob at its top which is used to start and stop and reset stop watch. Digital stop watch has 2 buttons, one to start and one to stop and reset.

2. Mechanical stop watch can measure a time interval up to 0.1 second. Digital stop watch can measure a time interval up to 0.01 second.

3. Mechanical stop watch is less accurate than digital stop watch. Digital stop watch is more accurate than mechanical stop watch.

(1) balu
HCS
25/04/2024

Differentiate b/w systematic and random error. How can these error be reduced?

Definition :: Every measurement, no matter how careful, has a certain amount of doubt known as error. Error is simple uncertainty that arises during measurement.

Systematic

Systematic errors tend to occur consistently in one direction, either positive or negative.

It is caused by instrumental error i.e. zero error, imperfection in experimental technique or procedure and

Random.

Random errors are unpredictable and uncontrollable errors that can happen irregularly.

It is caused by fluctuation in experimental condition or imperfection in measuring instrument.

personal error, which arise from an individual-bias

Systematic errors can be reduced by improving experimental technique choosing better instrument and minimizing personal bias as much as possible

To minimize random errors, it is important to take repeated measurement and use statistical analysis to account for variability.

Draw margin
28/04/2024

- Systematic error can be reduced by improving experimental technique choosing better instrument and minimizing personal bias as much as possible.

- To minimize random errors, it is important to take repeated measurement and use statistical analysis to account for variability.

2. What is meant by significant figure. and write down rules of significant figure.

Ans/

Significant figure:

All accurately known digits and first doubtful digit in any measurement is called significant figures.

Rules for Significant figure:

It is directly reported as the result in

All digits reported as direct result of a measurement ^{is} significant.

Non Zero digits ^{is} always significant.

For Example:

27 has two significant digits

277 has 3 significant digits.

Zero's between two significant figures are also significant.

For Example: 270.5 has four significant digits.

20405 has two significant digits

4. Final or ending zeros on (right of decimal fraction) are significant.

For Example:-

275.00 has 5 significant digits -

5. Zero's on left side of decimal point for purpose of spacing are not significant -

For Example:-

0.054 has two significant digits -

0.09999 has four significant digits -

6. In whole numbers that end with two or more zero's without decimal point - These zeros may or may not be significant. In such a case, Express quantity using scientific Notation

to find exact numbers of significant figures in measurements.

Example ::

Can be written as
 2.900×10^6 has four significant digits.

May-9-2024

C.W

Thursday

Numerical Problems

3. If a boy has age of 15yrs 2months, and 10 days, convert his age in

a. seconds -

$$15(365) + 2(30 \text{ days}) + 10 \text{ day}$$

$$= 5475 + 60 + 10$$

$$= 5545 \times 24 \text{ hrs}$$

$$= 133080 \text{ hrs}$$

$$= 133080 \times 60 \text{ mins}$$

$$= 7984800 \text{ min}$$

$$= 79848000 \times 60 \text{ sec}$$

$$= 479088000$$

milliseconds :-

$$= 479088000 \frac{10^{-3}}{10^{-3}}$$

$$= \frac{479088000}{10^{-3}}$$

$$= 479088000 \times 10^{-3}$$

$$= 4.79088 \times 10^{11}$$

Micrometer :- Sec :-

$$4.79088 \times 10^{11} \text{ sec} \rightarrow \text{MS}$$

$$\frac{479088000 \times 10^6 \text{ sec}}{10^6 \text{ sec}}$$

$$\frac{479088000}{1000000}$$

$$479.088 \text{ Msec}$$

C.W

Q/ What Estimate your age in seconds

My age is 14 yrs

Age in Minutes:

14 yrs

14 x 365 days

$$14 \times 365 \times 24 = 7358400 \text{ min}$$

Age in seconds:

$$= 7358400 \times 60 \text{ sec} \\ = 441,504,000 \text{ sec}$$

C.W

Topic: Physical Quantities

2. Differentiate b/w precision and accuracy?

Accuracy -

Precision -

1. Accuracy measures how close results to true or known value - Precision refers to how close measurement of same items to each other -

2. Accuracy can be effected by systematic errors - Precision can be effected by random error -

3. Measurement can be accurate but not precise but not necessarily precise accurate -

4. **Example:-**

Example:-

Accurately hitting target means you are close to centre of target. Precisely hitting target means all hits are closely spaced - Even they are



STUDYBEESOFFICIAL

LEARN • GROW • SUCCEED

FOLLOW OUR WHATSAPP CHANNELS **5**

	Studybeesofficialpak HSSC 📖 Notes • Past Papers • Updates	CLICK ME TO JOIN CHANNEL 
	Studybees SSC 📖 Notes • Past Papers • Updates	CLICK ME TO JOIN CHANNEL 
	Studybees EntryTest 🎯 Preparation • MCQs • Updates	CLICK ME TO JOIN CHANNEL 
	Studybees Foreign scholarships 🌐 Scholarships • Guidance • Opportunities	CLICK ME TO JOIN CHANNEL 
	Studybees MDCAT ➕ Notes • Tests • Guidance • Updates	CLICK ME TO JOIN CHANNEL 

FOLLOW US ON OTHER PLATFORMS

	YouTube Channel Studybeesofficialpak	CLICK ME TO JOIN CHANNEL 
	Facebook Page studybeesofficial Pak	CLICK ME TO JOIN CHANNEL 
	Instagram studybeesofficial	CLICK ME TO JOIN CHANNEL 

Stay Connected, Stay Ahead!



QUALITY
CONTENT



EXAM
PREPARATION



CAREER
GUIDANCE



OPPORTUNITIES