



CLASS :7

Subject: physics

Date :- 01. 06 .2020

Topic:

Time:-

Worksheet No.:

[Read and learn the notes thoroughly. Copy the questions and solve them on a sheet of paper date wise. Keep the WorkSheet prepared in a file to be submitted on the opening day]

Worksheet – 1 (Answers) (Chapter-1. Measurement)

Ans. 1) The amount of surface occupied by a body is known as Area.

Ans. 2) The S. I unit of area is square metre

Ans. 3) Two multiple units are square kilometre, square decametre
Two sub – multiple units are square decimetre and
Square centimetre.

1 square kilometre = 1000000 square metre

1 square decametre = 100 square metre

1 square decimetre = 1/100 square metre

1 square centimetre = 1/10000 square metre

Ans. 4) 1 square hectometre = The area of a square of side 1 hecto

metre is known as 1 square hectometre.

1 square deca metre = The area of a square of side 1
deca metre is known as 1 square deca metre

Ans. 5) 1 square decimetre = The area of a square of side 1 dcm is
Known as 1 square decimetre.

1 square millimetre :- The area of a square of side 1 mm is
Known as 1 square decimetre.

Ans. 8) the dimension of rectangle

Length = 20.5 cm

Breadth = 8.5 c

Area of rectangle = $L \times B$

= (20.5 x 8.5) square centimetre

= 174.25 square centimetre.

• **Worksheet – 2 (Measurement)**

ANSWERS

Ans. 1) The space occupied by a body is known as volume.

Ans. 2) The C. G. S unit of volume is cubic centimetre

The S. I unit of volume is cubic metre.

Ans. 3) The volume of a cube of side 1 cm is known as
1 cubic centimetre

Ans. 4) The volume of a cube of side 1 metre is known as
1 cubic metre.

Ans. 5) The volume of a cube of side 1 km is known as one cubic
Kilometre.
The volume of a cube of side 1 dcm is known as 1 cubic
Decimetre
The volume of a cube of side 1 mm is known as 1 cubic
Millimetre

Ans. 6) 1 cubic centimetre = 1000 cubic millimetre

Ans. 7) 1 cubic kilometre = 1 000 000 cubic decametre

Ans. 9) Volume of cube = Length x Length x length
Volume of Cuboid = Length x breadth x height
Volume of cylinder = $2 \times \pi \times \text{radius} \times \text{height}$

Ans. 10) volume of cuboidal box = length x breadth x height
= 15cm x 10cm x 8cm.
= 1200 cubic centimetre

Worksheet – 3 (Answers)

Ans. 1) The volume equal to 1000 cubic centimetre is known as
one litre.

The volume equal to 1 cubic centimetre is known as
one millimetre

Ans. 2) Some instruments used for measuring volume are measuring cylinder and measuring mug.

Ans. 3) Match boxes dimension is very small. If it is measured in SI unit then the numerical value will occur in decimal. To find the volume we have to multiply the numeric values. The result will occur in five or six place of decimal which will be inconvenient to express and do further calculations. So the volume of match box is expressed in CGS unit.

Ans. 4) MEASUREMENT OF VOLUME OF IRREGULAR SOLID BY MEASURING CYLINDER

- 1) Take a measuring cylinder and almost half fill it with water. By keeping the eye at the lowest point of concave surface of water we will record the volume of water. Let us call this volume as initial volume of water.
- 2) Now we will tie the given irregular solid with a wax coated cotton thread. We will gently immerse the solid in the water till it rest on the bottom of the cylinder. The irregular shaped body will displace water equal to its own volume so, the water level in the cylinder will rise. We will record the new volume of water. Let us call this volume as final volume.
- 3) Now we can find the volume of irregular shaped body easily by subtracting initial volume from final volume.

Let, X = Final volume
Y = Initial volume.

Then volume of irregular shaped body = $(X - Y)$ ml

Note – We can use measuring cylinder to find the volume of regular shaped body.

We can also find the volume of bodies lighter than water with the help of measuring cylinder.
In this case we will need a sinker which will

Ans. 5) volume is measured in units like litre and millilitre.

Ans. 6) 1 cubic metre = 1000000 cubic centimetre
= 1000000 mililitre
1 litre = 1000 ml

Ans. 7) Length of book = 25 cm
Breadth of book = 15 cm
Height of book = 2 cm
Volume of the book = $25 \times 15 \times 2$
= 750 cubic centimetre
= $750/1000000$ cubic metre
= 0.00075 cubic metre

Ans. 8) Final volume of water = 21.0 ml
 Initial volume of water = 12.5 ml
 Volume of stone = 21.0 – 12,5
 = 8.5 ml

The volume of water displaced by the stone is equal to the volume of stone.

Worksheet – 4 (Answers)

Ans. 1) The mass per unit volume of a body is known as density.

Ans. 2) The unit of density
 C. G. S unit = gram / cubic centimetre
 S. I unit = kilogram / cubic metre

We know

$$\begin{aligned}
 1 \text{ kilogram/metre cube} &= \frac{1 \text{ kilogram}}{1\text{m} \times 1\text{m} \times 1\text{m}} \\
 &= \frac{1000 \text{ gram}}{100\text{cm} \times 100\text{cm} \times 100\text{cm}} \\
 &= \frac{1000 \text{ gram}}{1000000 \text{ cubic centimetre}} \\
 &= \frac{1 \text{ gram}}{1000 \text{ cubic centimetre}}
 \end{aligned}$$

1000 kilogram / metre cube = 1 gram /centimetre cube

1 gram / centimetre cube = 1000 kilogram / metre cube

Ans. 3) *The instruments used for measuring density is known as density bottle.*

Ans. 4) *Materials Required :-*

- 1) Physical balance*
- 2) Measuring cylinder*
- 3) Wax coated thread*
- 4) A solid body heavier than water (sample body)*
- 5) Pen, Pencil, Eraser, scale*

Procedure :-

- I) First of all we will measure the mass of the solid body with the help of a physical balance.
Let M = mass of the body*
- II) We will take the measuring cylinder and fill it upto certain level, Let it be v ml.
Initial volume of water in cylinder = v ml*
- iii) we will tie the solid body with the help of the wax Coated thread. We will immerse the solid body into The measuring cylinder till it rest freely on the base Of the cylinder.*
- iv) we will note the height of water level in the cylinder.
Let it be V ml
Final volume of liquid in the cylinder = V ml*
- v) We will calculate the volume of the solid body as
Volume of solid body = Final volume – Initial volume.
Volume of solid body = $(V - v)$ ml*

$$\text{Density of solid body} = \frac{\text{Mass}}{\text{Volume}} = \frac{\text{Mass}}{(V - v) \text{ ml}}$$

Ans. 5) Measurement of density with the help of density bottle.

- *Materials Required*

- I) *Density bottle*
- II) *Water*
- III) *Liquid whose density need to be determined*
- IV) *Dry and clean piece of cloth*
- V) *Physical balance*

- *Procedure :-*

i) *First of all we will take a density bottle. Clean it and dry it. We will measure the mass of the bottle with the help of physical balance.*

Let x = mass of the density bottle

ii). *We will fill the density bottle with water and measure its mass with the help of physical balance.*

Let X = mass of density bottle along with water

iii) *We will empty the bottle and dry it properly. Then we fill the bottle with liquid, whose density need to measure. Now we will measure the mass of the bottle with the help of physical balance.*

Let Y = mass of density bottle along with the liquid

iv). *Mass of water = $(X - x)$ g*

v) *Mass of liquid = $(Y - x)$ g*

vi) *Volume occupied by 1 g water = 1 cubic centimetre*

vii) *Volume occupied by $(X - x)$ g water = $(X - x)$ cc*

viii) *Volume of liquid = volume of water*

ix) *Volume of liquid = $(X - x)$ cc*

$$x) \text{ Density of liquid} = \frac{(Y - x) g}{(X - x) \text{ cc}}$$

In this way we can find the density of any liquid with the help of density bottle.

Ans. 6) THE RATE OF CHANGE OF POSITION OF A BODY WITH RESPECT TO TIME IS KNOWN AS SPEED

Let, $D = \text{Distance}$
 $T = \text{Time}$
 $S = \text{Speed}$

$$\text{Speed} = \frac{D}{T}$$

Ans. 7) Uniform Speed :- When a body covers equal distance in equal interval of time then the speed is known as uniform speed.

- Non uniform Speed:- When a body covers unequal distance in equal interval of time then the speed is known as Non Uniform Speed.

Note :- speed is a scalar quantity.

Non Uniform Speed is also known as Variable Speed

- **Ans. 8)** Units of Speed

- I) In C. G. S system = cm / sec
- II) In S. I system = m / sec

Ans. 9) mass of lead block = 69g

Density of lead block = 11.5 g/cc

$$\begin{aligned}\text{Volume of the block} &= 69 / 11.5 \\ &= 6 \text{ cc}\end{aligned}$$

Ans. 10) distance travelled by cockroach = 30m
Time taken = 1.5 min
= 90 sec
Speed of cockroach = 30/90
= 0.33m/s

Ans.11) speed of motor cycle = 15m/s
Time = 45 s
Distance travelled by motorcycle = 675 m

Worksheet – 5 (Answers) (chapter – 2, Force and Motion)

Ans.1) Rest :- When a body does not change its place and position with Respect to time then the body is said to be at rest.

Motion :- when a body changes its place and position with respect to Time then the body is said to be in motion.

Ans. 2) Rectilinear Motion :-When a body moves on a straight path then the Motion is known as Rectilinear Motion.
Example :- bullet fired from a gun. Etc

Curvilinear Motion :- When a body moves along a curve path then The motion is known as curvilinear motion.
Example :- a car turning near U turn. Etc

Ans. 3) TRANSATORY MOTION :- When every particle of a body cover Equal distance in equal interval of tjme then the motion is known as Translators motion.
Example:- car moving on a straight Road. etc

ROTATORY MOTION :- When a body rotates on a fixed axis then the

Motion of the body is known as Rotatory Motion.

Example:- top rotating on the tip of a nail. Etc

Ans. 4). *Force is required to change the state of a body.*

Force can change the state of a body from rest to motion as well as can bring a body from motion to rest. Force can increase or decrease the speed of a body.

Worksheet – 6 (Answers)

Ans. 1) **UNIFORM MOTION** :*When a body covers equal distance in equal interval of time then the motion is known as uniform motion*

Example :- motion of hands of clock etc

NON – UNIFORM MOTION :- *When a body covers unequal distance in equal interval of time then the motion is known as Non – Uniform motion*

Example – The motion of a bicyclists on a busy road etc.

PERIODIC MOTION :- *When a body repeats its motion in regular interval of time then the motion is known as periodic motion*

Example :- The motion of earth around the sun etc

VIBRATORY MOTION :- *When a body exhibits to and fro motion about its mean position in such a way that every particle of a body do not cover equal distance in equal interval of time then the motion is known as Vibratory motion.*

Example :- The motion of stretched rubber band when plucked in the middle etc

MULTIPLE MOTION :- when a body exhibits more than one type of motion at a time then the motion of the body is known as Multiple Motion.

Example :- The motion of a driller. It exhibit rotator and Rectilinear Motion at the same time etc.

RANDOM MOTION :- When a body exhibits zig zag motion in all possible direction then the motion of the body is known as Random Motion.

Example :- The motion of gas molecules enclosed in a container etc

NON – PERIODIC MOTION :When a body do not repeats it motion in regular interval of time then the motion is known as Non – Periodic motion.

Example :- The motion of air column in a flute etc.

CIRCULAR MOTION :- When a body moves in a circular path then the motion is known as circular motion

Example :- The motion of motorcycle on a circular path etc

OSCILLATORY MOTION :- When a body exhibits to and fro motion about its mean position in such a way that every particle of the body covers equal distance in equal interval of time then the motion of the body is known as oscillatory motion.

Example :- The motion of pendulum of a wall clock etc

Ans. 2) *In vibratory motion all the particles of a body do not travels equal distance in equal interval of time but in oscillatory motion all the particles of a body covers equal distance in equal interval of time. This is the basic difference between vibratory motion and oscillatory motion.*

