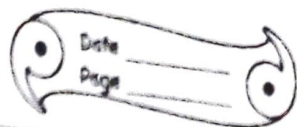


Ch-2  
Exercises



27.6.21

Qno 1)  
Ans 1)

Explain the meaning of the terms rest and motion.

Rest - A body is said to be at rest if it does not change its position with respect to its immediate surrounding.

Motion - A body is said to be in motion if it does change its position with respect to its immediate surroundings.

Qno 2)

Comment on the statement 'rest and motion are relative terms.' Give examples.

Ans)

Imagine you are sitting inside a moving bus, when you look outside you will observe that you are moving. Now look to the roof of the bus. With respect to the roof of bus, you are at rest. Hence it is concluded that rest and motion are relative terms.

Qno 3)

Fill in the blanks using one of the words: at rest, <sup>in</sup> motion

a)

A person walking in a compartment of a stationary train is in motion relative to the compartment and is at rest relative to the platform.

b)

A person sitting in a compartment of a moving train is at rest relative to the other person sitting by his side and is in motion relative to the platform.

Qno 4)

Name five different types of motion you know.

Ans)

The different types of motion are:

1

Translatory motion



- 2 Rotatory motion
- 3 Oscillatory motion
- 4 Vibratory motion
- 5 Periodic motion
- 6 Multiple motion
- 7 Random motion.

Qno5) What do you mean by translatory motion? Give one example.  
 Ans) If an object moves in a line in such a way that every point of the object moves through the same distance in the same line, then the motion of the object is called translatory motion. E.g. The motion of an apple falling from a tree.

Qno6) Explain the meaning of (i) rectilinear motion, and  
 (ii) curvilinear motion. Give one ex each.

Ans) Rectilinear motion :- If the motion of a body is along a straight line, it is said to be the rectilinear or linear motion.  
 E.g. The motion of bullet from a gun.

Curvilinear motion :- If the motion of a body is along a curved line, it is said to be the curvilinear motion.  
 E.g. a car moving along a curved path.

Qno7) What is rotatory motion? Give examples.

Ans) A body is said to be in a rotatory motion or a circular motion.

if it moves about a fixed axis without changing the radius of its motion.

E.g. The blades of a fan.

Qno 8) What is meant by circular motion? Give an example.

Ans) The motion of a body along a circular path is called circular motion. E.g. the motion of a satellite around the earth.

Qno 9) How does a rotatory motion differ from the circular motion?

Ans) In a rotatory motion, the axis of rotation passes from a point in the body itself; whereas in circular motion, the axis of revolution passes through a point outside in the body. ~~Body~~

Qno 10) Explain oscillatory motion by giving one example.

Ans) The to and fro motion of a simple pendulum is an oscillatory motion. E.g. The motion of a swing.

Ex 11) What is vibratory motion? Give one example.

Ans) In vibratory motion, a part of the body always remains fixed and the rest part moves to and fro about its mean position. During the vibratory motion, ~~which gets~~ the shape and size of the body changes. E.g. when we breathe,



our chest expands and contracts. This motion is vibratory motion.

Qno 12) Differentiate between periodic and non-periodic motions by giving an example of each.

Ans) A motion which gets repeated after regular intervals of time is called a periodic motion.

Examples - The motion of earth around sun.

A motion which gets repeated after irregular intervals of time is called a non-periodic motion.

E.g. - A footballer running on a field.

Qno 13) What is random motion? Give examples.

Ans) When an object in a motion has no specific path and which suddenly changes its motion is said to have a random motion. Eg. a flying kite.

Qno 14) Name the types of motion being performed by each of following.

- Vehicle on a straight road - Rectilinear
- Blades of an electric fan in motion - Rotatory
- Pendulum of a wall clock - Oscillatory
- Smoke particles from chimney - Non-periodic
- Hands of a clock - Uniform ~~circular~~ periodic
- Earth around the sun - Rotatory, circular, periodic
- A spinning top - Rotatory



Q15) Give two examples to illustrate that a body can have two or more types of motion.

Ans) i) The wheels of a moving train have both the translatory and rotatory motion.

ii) The earth rotates about its axis (Rotatory motion) and at the same time it revolves around the sun (Circular motion) in a fixed time interval (periodic motion).

Q16) State the types of motion of the following:

a) The needle of a sewing machine - : Periodic

b) The wheel of a bicycle - : Rotatory

c) The drill machine - : Mixed (Translatory Rotatory)

d) The carpenter's saw - : Mixed (Translatory-Oscillatory)

Q17) Distinguish between uniform and non-uniform motion?

Ans)	Uniform Motion	Non-uniform motion
1)	If a moving body travels equal distances in equal intervals of time; the direction remains same.	1) If a moving body covers unequal distances in equal intervals of time; the direction changes.
2)	Example - : A body moving with a constant speed in a straight line.	2) Circular motion is example of non-uniform motion.



Qno 18) How do you determine the average speed of a body in non-uniform motion?

Ans) In a non-uniform motion, the average speed of a body is calculated by dividing the total distance ( $d$ ) travelled by the body, ~~with~~ with the total time of the journey,  $t$ . Thus, Average speed =  $d/t$

Qno 19) Define the term weight and state its S.I. Unit.

Ans) The weight of a body is the force with which earth attracts the body i.e. the weight of a body is the force of gravity on it. It is represented by the symbol  $w$ . The S.I. Unit of weight is newton (N).

Qno 20) How are the units of weight, kgf and newton related?

Ans)  $1 \text{ kgf} = 10 \text{ N}$

Qno 21) State three differences between mass and weight.

Mass:	Weight
* The quantity of matter contained in a body.	* The force with which the earth attracts the body.
* S.I. Unit is kilogram (kg)	* S.I. Unit is Newton (N) <sup>and</sup> <del>and</del>
* Remains constant.	other unit is kilogram force (kgf)
* Measured by a beam balance.	where $1 \text{ kgf} = 10 \text{ N}$ (nearly)
	* It is not constant
	* Measured by a spring balance.

Qno 22) Which quantity: mass or weight, does not change?

Ans) The mass of a body ~~is~~ remains constant.

Qno 23) State which of the quantities, mass or weight directed vertically downwards.

Ans) Weight is always directed vertically downwards.