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is kilogram-force (kgf) where $1 \text{ kgf} =$

10N (nearly)

It is measured by a spring balance

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does not change by change of place?

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It is constant for a body and it does not change, by changing the place of the body. It is measured by a beam balance.

Weight

It is a force with which the earth attracts the body. Its SI unit

is the force of gravity on it. The weight of a body is not constant. But it changes from place to place. It is represented by the symbol W . The S.I unit of weight is Newton (N)

Q200 How are the units of weight, kgf and newton related?

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

Q210 ~~It is~~ state three differences between mass and weight.

Ans- mass: It is the quantity of matter contained in a body.

Its S.I unit is kilogram (kg)

uniform motion

ex- A body with a constant speed in a straight line has uniform motion.

Non uniform motion

ex- circular motion
example of non-uniform motion.

Q18. How do you determine the average speed of a body in non-uniform motion?

Ans. In non uniform, the average speed of a body is calculated by dividing the

total distance ~~are~~ Average speed =

~~Total~~ Average speed = Total distance traveled by a body / Total time of journey.

Q19. Define the term weight and state 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

Ans) a) Periodic motion

b) Rotatory motion

c) mixed = Translatory and Rotatory motion

d) mixed = Translatory and oscillatory motion.

Q17) Distinguish between uniform and non uniform motions give an example for each.

uniform motion

Non-uniform motion

1. When a body covers equal distances in a straight line, in equal intervals of time intervals may be.

1. When a body covers unequal distances in equal intervals of time in a straight line.

2. In this case direction remain the same

2. In this case direction of motion changes.

(ii)

The Earth rotates about its axis (rotatory motion) and at the same time it revolves around the Sun in a curved path (curvilinear or circular motion) in a fixed time interval (periodic motion).

Q160 State the types of motions of the following:

a) The needle of a sewing machine

b) The wheel of a bicycle

c) The drill machine

d) The carpenter's ~~door~~ saw

Q. Rotatory motion

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

Ans. Sometime a body can have more than one type of motion. Such a motion is called the mixed motion.

Ex- The wheels of a moving train have both the translatory as well as the rotatory motions as it moves from position A to position B while rotating

- 20 Blades of an electric fan in motion
- cb Pendulum of a wall clock
- db smoke particles from chimney
- ec Hands of a clock.
- cfb Earth around the sun
- eb A spinning top.
- casf Rectilinear motion
- bb Rotatory motion
- ce oscillatory motion, periodic motion
- ed Non-periodic motion
- ee uniform circular and periodic motion
- cfb Rotatory motion circular motion and periodic motion

Examples - A footballer running on a field. • Application of brakes in a moving vehicle. A ball rolling down the ground gradually down and finally stops. • motion of tides in the sea, etc

Q13. What is random motion Give one examples

Ans. Random motion - when an object in a random motion has no specific path and which suddenly changes

Ex - A flying ~~bird~~ kite.

Q14.

Q14. Name the types / types of motion being performed each of the following;

a) vehicle on a straight road.

vibratory motion.

Q12. Differentiate between periodic and non periodic motions by giving examples of each

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

Ex- The earth moving around the sun takes 365 days to complete to one revolution and this motion gets repeated after every 365 days.

Non-periodic motion.

oscillatory motion.

Ex-1 The motion of a sewing

20 Piston of an engine.

Q110 What is vibratory motion? Give one example

Ans In vibratory motion, a part of the body

always remain fixed and the rest

part moves to and fro about its

mean ~~positive~~ position. During

the vibratory motion. The ~~of~~ shape

and size of the body changes.

Ex- when we breath, our chest

expands and contracts. This motion

is the circular motion whereas the motion of earth about its own axis is the rotational motion.

(iv) In the circular and rotational motions, the distance of a point of a body from a fixed point always remain same, whereas it is not same in curvilinear motion.

Q10. Explain oscillatory motion by giving one example.

Ans. oscillatory motion - The to and fro motion of a simple pendulum

Ans. The motion of a body along a circular path is called circular motion.

Example- A girl is whirling a stone tied at the end of a string in a circular path.

Q9. How does a rotatory motion differ from the circular motion.

Ans. In 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. Thus the motion of earth around the sun

By an athlete are in curvilinear motion.

Q70 ~~Q~~ What is rotatory motion? Give examples

Ans. Rotatory motion - 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.

Examples - The blades of a fan, a spinning wheel.

Q80 What is meant by circular motion? Give one examples.

Q60 Explain the meaning

(i) Rectilinear motion

Ans. If the motion of a body is along

a straight line, it is said to be the

rectilinear or linear motion. The motion

of bullet fired from a gun.

(ii) Curvilinear motion

Ans. If the motion of a body is along a curved path, it is said to be the

curvilinear motion. For example, the

motion of a cycle while taking

a turn on the road, a car moving

along a curved path, a ball thrown

moves in a line such a way that every point of the object moves through the same distance in same time.

then the motion of man walking on a road the motion of the object is called translatory motion.

Ex- The motion of an apple falling from a tree, the motion of a man walking on a road. The motion of a box when pushed from one corner of a room to the other, all the translatory motions.

Q40 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

Q50 What do you mean by translatory motion? Give one example.

Ans. If an object like a vehicle,

Q30 Fill in the blanks using one of the words: at rest in motion.

a) A person walking in a compartment of ~~stationary~~ ~~of~~ stationary train is relative to the compartment and is relative to the platform.

ans

a) A person walking in a compartment of a stationary ~~to~~ train is in motion

relative to the compartment and is in motion relative to the platform.

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

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B0 Short / long answers questions

Q1 Explain the meaning of the terms rest and motion?

Ans Rest - A body is said to be at rest if it changes its position with respect to its immediate surroundings.

Q2 Comment on the statement 'rest and motion are relative terms'. Give an example.

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 bus.

You are rest. Hence it is concluded

that rest and motion are relative terms.