Force and Pressure

1. **What is Rest?**
   Ans. A body is said to be at rest if its position does not change with respect to the fixed reference point or observer.

2. **What is Motion?**
   Ans. A body is said to be motion if its position changes with time with respect to the observer.

3. **Why it is called that Rest and Motions are Relative?**
   Ans. Rest and motion are relative terms because rest and motion are defined with respect to a fixed rigid point known as the reference point but in this universe, there is no absolute reference point exist but all the reference points are relative so rest and motion are also absolute. For example
   A. A passenger sitting on a moving bus is at rest with respect to his co-passenger but at the same time, he is moving with the bus with respect to a person standing outside.
   B. Our home, office or school is at rest with respect to the earth, but they are moving along with the earth with respect to the sun.
   C. Sun seems to be at rest with respect to our solar system but our solar system is moving along with the sun around the center of the galaxy.
   So we can say that rest and motion are two relative terms.

4. **Define Translatory Motion.**
   Ans. In Translatory Motion the whole object moves from one place to another. Every part of the object moves by the same distance in the same direction in a given time.
   It is classified as rectilinear, curvilinear and circular.

5. **What is Rectilinear Motion?**
   Ans. An object is moving along a straight line, then the motion is called Rectilinear Motion.
   Ex: A car is travelling on a straight road is an example of Rectilinear Motion.

6. **What is Curvilinear Motion?**
   Ans. An object is moving along a cervical path, then the motion is called Curvilinear Motion.
   Ex: A bicycle is turning around a bend is an example of Curvilinear Motion.

7. **What is Circular Motion?**
   Ans. An object is travelling along a circular path and coming back to its initial point. Then the motion is called Circular Motion or Revolution.
   Ex: The revolution of the planets around the Sun is the example of Circular Motion.

8. **What is Rotatory Motion?**
   Ans. When an object turns around an internal axis, then the motion is called Rotatory Motion.
   Ex: Earth spinning on its axis is the example of Rotatory Motion.

9. **What are the differences between Rotatory Motions and Circular Motions?**
   Ans. Rotatory Motions may seem similar to circular motion, but the difference is that in the Rotatory Motion the axis of rotation lies within the object itself. And in Circular Motion the axis of rotation lies outside the objects.
10. **What is Oscillatory Motion or Vibratory Motion?**
    Ans. An oscillatory motion is a motion where a body moves between two extreme positions.
    The center of these extreme positions is called **mean position**.
    Time taken to complete one oscillation is called **Time Period**.
    When an oscillatory motion repeats itself in equal intervals of time it is called Periodic Motion.
    Ex: The motion of a simple pendulum is an example of Oscillatory Motion.

11. **What is Repetitive and Periodic Motion?**
    Ans. If the motion that happens repetitively is known as Repetitive Motion.
    If the Repetitive Motion also happens at a regular interval of time, it is called Periodic motion.
    Ex: The motion of a pendulum and the rotation of earth in its axis are periodic since they are repeated at regular time intervals.

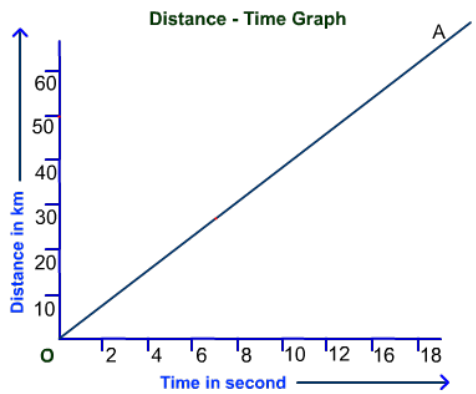
12. **What is Non-periodic Motion?**
    Ans. Motion that is not repeated at regular intervals of time is termed Non-Periodic Motion.
    Ans. A ball is bouncing on the ground moves up and down repeatedly, but the movement does not happen over regular time intervals as the ball bounces through shorter heights each time. Hence the motion is reparative but not periodic.

13. **What is Multiple Motion?**
    Ans. Different types of motion take place at the same time. This motion is known as multiple or mixed motion.

14. **What is Random Motion?**
    Ans. Unpredictable kind of motion where an object moves in any direction and the direction keeps changing continuously is called Random Motion.
    Ex: Kite flying in the air, Fish swimming underwater etc.

15. **What is Uniform Motion?**
    Ans. An object is in Uniform Motion if it travels in a straight line and covers equal distances in equal intervals of time.

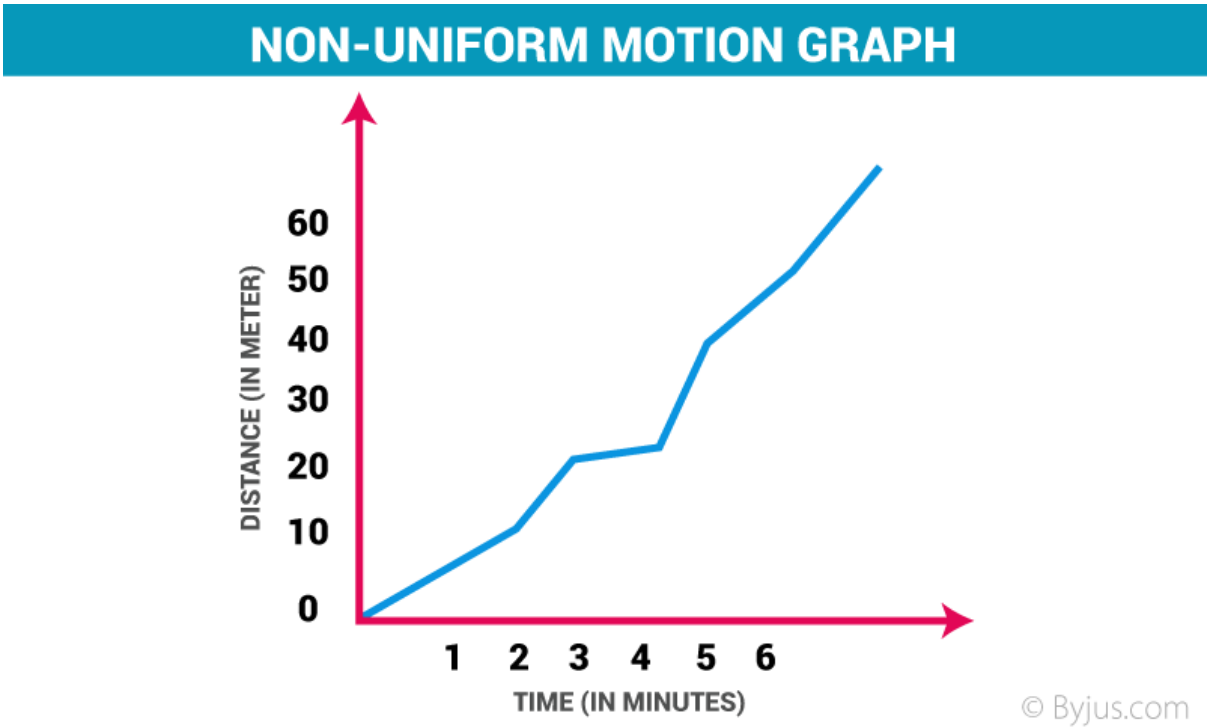
16. **Draw Distance and Time graph of Uniform Motion.**
    Ans.



17. **What is Uniform Speed?**
Ans. When an object covers equal distances in equal intervals of time, it is said to be Uniform Speed.

18. **What is Non-uniform Motion?**
Ans. An object is said to be in non-uniform motion if its path is not a straight line or if the distances covered by it in equal intervals of time are not equal.

19. **Draw Distance and Time graph of Non- Uniform Motion.**
Ans.



20. **What is non uniform speed?**
Ans. A body is said to be in a **non-uniform motion** if it travels unequal distances in equal intervals of time.

21. **What is mass?**
Ans. The mass of an object is the amount of matter contained in it.
SI unit of mass is Kilogram.

22. **What is Gravitational Force?**
Ans. The gravitational force is a force that attracts any two objects with mass.

23. **On which factors the Gravitational force between two objects depends.**
Ans. Gravitational force between two bodies depends on:
a. Masses of the two bodies. The greater an object's mass, the greater its gravitational force.
b. Distance of separation between them. The smaller the distance greater is the gravitational force.

24. What is called Weight?

Ans. Weight of an object is the force of Earth's gravity acting on it.
SI unit of Weight is **Newton**.

25. Weight of an object varies place to place on the earth why?

Ans. Weight = mass x gravity

Mass of the body is constant as it is property of body, but weight is product of acceleration due to gravity and mass, which may vary from place to place because acceleration due to gravity is different for different places. So, the given statement is true.

26. Which instruments are used to measure Weight of any body?

Ans. Spring Balance or Compression Balance, Beam Balance etc.

27. Write the differences between Mass and Weight.

Ans.

Difference between mass and weight	
Mass	**Weight**
1. Mass is the amount of matter contained in a physical body.	1. Weight is the gravitational force with which a physical body is attracted toward the center of the Earth (or other celestial bodies).
2. Mass is one fundamental property of matter.	2. Weight is not a fundamental property.
3. Mass has magnitude but no direction, so it is a scalar quantity.	3. Weight has both magnitude and direction, so it is a vector quantity.
4. Mass of a body is independent of the location where it is measured. A matter has constant mass in the entire Universe.	4. Weight of a body varies depending on the location of measurement as the acceleration due to gravity changes with location.
5. Mass is measured using a Pan Balance, inertial balance or Electronic Balance.	5. Weight is measured using a Spring Balance.
6. SI unit of mass is Kilogram (kg) and CGS unit is Gram (g).	6. SI unit of weight is Newton (N) and CGS unit is Dyne (dyne).
7. Dimensional Formula of mass is [M].	7. Dimensional Formula of weight is [$M L T^{-2}$].
	www.difference.minaprem.com