

**NISCORT FATHER AGNEL SCHOOL, VAISHALI**

**Worksheet : Gravitation**

**Class IX**

1. What is the difference between mass and Weight?
2. Derive the inverse square of Newton.
3. Define 'G' and give its value.
4. A ball is thrown up with speed of 10 m/s. How high will it go before it begins to falls? Take  $g=10\text{m/s}^2$
5. The weight of the man on earth is 150 N and on certain planet is 25 N.  
Take  $g=10\text{m/s}^2$  on earth
  - (i) Find the mass of the man on earth and planet
  - (ii) Find the acceleration due to gravity on the planet
6. Earth attracts apple from the tree and it falls on it but the earth does not move towards the apple. Why?
7. Is uniform circular motion taking place at a constant speed or constant velocity? Why?
8. Name the force which is required to maintain a body in uniform circular motion?
9. A ball is projected vertically upwards with an initial velocity of  $u$  goes to a maximum height  $h$  before coming to ground. What is the value of  $h$ ?
10. Is value of 'g' same everywhere?
11. Find relationship between 'g' and 'G'
12. During a free-fall what is the weight of a body. Give reason for the answer.
13. A stone and feather are thrown from a tower, both the objects should reach the ground at same time but it does not. Why?
14. What is the value of 'G', universal gravitational constant?
15. Find the value of 'g', acceleration due to gravity.
16. Calculate value of 'g' on moon.
17. Show that the weight of the body on moon =  $1/6$  of the weight of the body in earth.
18. What The earth attracted to each other by gravitational force. Does the earth attract the moon, with a force that is greater, or smaller, or the force with which the moon attracts the earth? Why?
19. The earth attracts the moon. Does the moon attract the earth? If it does, why does the earth not move towards the moon?
20. How are ocean tides caused?
21. What do we call the gravitational force between the earth and your body?
22. The earth attracts an apple. Does the apple also attract the earth? If it does, why does the earth not move towards the apple?
23. Is the gravitational acceleration independent of mass? Name the experiment which concluded this?

24. Where do we observe the maximum value of the gravitational acceleration? Equator, poles or Mt Everest?
25. You must have seen two types of balances, one is the spring balance and the other is the one with the kabadiwalas. Which one of it would you use to measure the mass of an object? Why?
26. How does the force of gravitation between two objects change when the distance between them is reduced to half?
27. The gravitational force acts on all objects in proportion to their masses. Why, then, a heavy object does not fall faster than a light object?
28. If the moon attracts the earth, why does the earth not move towards the moon?
29. State Universal law of gravitation?
30. A stone is released from the top of a tower of height 19.6 m. calculate its final velocity just before touching the ground.