

## Physics Unit Test No:1

Marks: 30

STD: X

## LAWS OF MOTION

## I. Answer any ten of the following (10\*2 = 20)

1. What are the three effects of force?
2. What are the two ways in which amount of change in momentum can be achieved?
3. Write short note about the Variation of acceleration due to gravity at different places?
4. Differentiate mass and weight.
5. Why do spanner have long handle?
6. State Newton's second law.
7. State the principle of moments.
8. (a) Give the applications of torque. (any 2).  
(b) What is the relation between  $g$  and  $G$ .
9. The ratio of masses of two planets is 2:3 and the ratio of their radii is 4:7. Find the ratio of their accelerations due to gravity.
10. Define inertia. Give its classification.
11. Give any 3 applications of Newton's law of gravitation
12. Define apparent weight. What is the condition for the apparent weight of a person in a moving lift when
  - a. moving upwards
  - b. moving downwards
  - c. at rest
  - d. falling freely

## II. Fill in the blanks (5\*1 = 5)

13. Force dependent motion is called ..... motion.
14. The value of the mass of the Earth is .....

16. By convention, the clockwise moments are taken as ..... and the anticlockwise moments are taken as .....
17. .... is also equal to the magnitude of change in momentum.

## III. Choose the correct answer (5\*1 = 5)

18. Velocity, which is sufficient to just escape from the gravitational pull of the Earth is called  
a) average velocity b) orbital velocity c) drift velocity d) escape velocity
19. Universal gravitational constant. Its value in SI unit is  
a)  $6.674 \times 10^{-11} \text{Nm}^2\text{kg}^{-2}$  b)  $0.6674 \times 10^{-11} \text{Nm}^2\text{kg}^{-2}$   
c)  $66.74 \times 10^{-11} \text{Nm}^2\text{kg}^{-2}$  d)  $6.674 \times 10^{-11} \text{Nm}^2\text{kg}^{-1}$
20. The velocity of a moving body of mass 5 kg whose linear momentum is  $2.5 \text{ kgms}^{-1}$   
a)  $1.5 \text{ ms}^{-1}$  b)  $0.25 \text{ ms}^{-1}$  c)  $0.4 \text{ ms}^{-1}$  d)  $0.5 \text{ ms}^{-1}$
21. Turning a tap is an example of  
a) impulse b) couple c) torque d) linear momentum
22. If the Earth shrinks to 50% of its real radius its mass remaining the same, the weight of a body on the Earth will  
a) decrease by 50% b) increase by 50%  
c) decrease by 25% d) increase by 300%