Class	Subject	Chapter	Date	Total . M	Instructor
First Year	Physics	3	26-01-2019	50	Sir faryad sb

Objective Type

Q#1: Choose the correct option. **1×12=12**

1. The range of projectile is same for the angle of projection

a) $(30^0, 45^0)$ b) $(50^0, 30^0)$ c) $(20^0, 60^0)$ d) $(30^0, 60^0)$

2. Motorcycle's safety helmet prevents the rider from injury by

a) Decreasing acceleration c) extending time of collision

b) reducing momentum d) applying friction

3. Distance covered by a freely falling body in 2 sec will be

a. 4.9m b. 19.6m c. 39.2m d. 44.1m

4. Inertia of a body is measured in terms of its

a. mass b. weight c. force d .velocity

5. flight of a rocket in the space is an example of

a. 2^{nd} law of motion b. 3^{rd} law of motion c. 1^{st} law of motion d. law of inertia

6. Change of momentum is called

a. Force b. pressure c. tension d. impulse

7. Dimensions for the impulse $I=\Delta P$ are given by

a. $[ML^2T^{-1}]$ b. $[ML^2T]$ c. $[ML^2T^{-2}]$ d. $[MLT^{-1}]$

8. The force due to water flow is

a. F=mv b. F=m v/t c. F=m/t d. F=vt/m

9. A body is thrown vertically upward with initial velocity 9.8 ms^{-1}. It will reach the height

a. 19.8m b. 29.4m c. 9.8m d. 4.9m

10. The path followed by the projectile is known as its

a. Range b. maximum range c. trajectory d. cycle

11. The maximum range of projectile is

a. $R_{max}=v_i^2/g$ b. $R_{max}=2V/g$ c. $R_{max}=V_i/g$ d. $2v_i^2/g$

12. Dimensions of impulse are similar to the dimensions of

a. Work b. torque c. force d. momentum

Subjective Type

Q # 2:- Attempt any 14 questions from following: **(2×14=28)**

1. What happens when a very heavy ball collides with light stationary ball?
2. An object is thrown vertically upward. Discuss the sign of acceleration due to gravity relative to velocity, while the object is in air.
3. Can the velocity of an object reverse direction when acceleration is constant? If so, give an example.
4. Explain the circumstances in which the velocity v and acceleration a of car are parallel b. Anti-parallel
5. Motion with constant velocity is a special case of motion with constant acceleration. Is this statement true? Discuss.
6. Define impulse and show that how it is related to linear momentum?
7. Explain the difference between elastic and inelastic collision. Explain how a bouncing ball behave in each case?
8. At what point or points in its path does a projectile have its minimum speed, its maximum speed?
9. A body is moving along a circle with a constant speed. Is it moving with uniform velocity?
10. Define Elastic collision.
11. State law of conservation of momentum.
12. State Newton's second law of motion in terms of momentum.
13. When a body is droped from a height 4m, calculate its velocity.
14. Define projectile motion.
15. What is ballistic missile? Define its trajectory.
16. What is the difference between inertial frame of reference and non-inertial frame of reference?

Long Question

Attempt any 1 question from following: (5+5=10)

Q# 3: a) A projectile is thrown with initial velocity v_i making an angle ɵ with the horizontal.

Find expression for 1. Maximum height 2. Time of flight

(b) A ball is thrown horizontally from a height of 10m with velocity of $21ms^{-1}$. How far off it hit the ground and with what velocity?

Q#4: a) State and prove Law of conservation of linear momentum.

b) Find the angle of projection of a projectile for which its maximum height and horizontal range are equal.