# Physics - FSC Part 1 Physics Chapter 3 Short Questions Preparation

Q1. Derive the 3rd equation of motion?

**Ans 1:**

---

Q2. Motion with constant velocity is a special case of motion with constant acceleration.Is this statement true?

**Ans 1:** Yes, this statement is true. When a body moves with constant velocity in the straight line, its acceleration is zero.Hence,The acceleration of the body will always remain constant during such motion.As the zero is a constant quantity, therefore this is a special case of motion.

---

Q3. What is the change in total energy during elastic or inelastic collisions?

**Ans 1:** The total energy of the system remains conserved during both type of collisions. But in an inelastic collision, some of the kinetic energy is lost .

---

Q4. Write solid reasons for the loss of kinetic energy in an inelastic collision.

**Ans 1:** In case of inelastic collision, the loss of kinetic energy is due to

1. Friction of ball with floor
2. Friction of ball with air
3. sound

---

Q5. Show that for the same initial speed and some range of projectile there are two mutually complementary angles of projection ?

**Ans 1:**

---

Q6. Define total of flight. Derive a mathematical expression for it ?

**Ans 1:** The term taken by projectile from point of projection to the striking point is known as total time of flight.

---

Q7. Derive its equation of motion ?

**Ans 1:**

---

Q8. Under what condition, the instantaneous and average velocities of a moving object become equal?

**Ans 1:** For a body moving with uniform velocity, its average and instantaneous velocities are equal.

---

Q9. What is a Ballistic Flight?

**Ans 1:** The flight in which projectile is given an initial push and is then allowed to move freely due to inertia and under the action of gravity is called ballistic flight and the path followed by it is called ballistic trajectory

---

Q10. At what point or points in its path does a projectile have its minimum speed,its maximum speed?

**Ans 1:** The speed of the projectile is minimum at the maximum height of projectile. It is because of the reason that; at maximum height the vertical component of velocity becomes zero.
The speed of the projectile is maximum at the point of projection and also just before it strikes the ground because the vertical component of velocity is maximum at these points.

---