Topic 8 – Mechanics

Projectile Motion

Projectile motion is the motion experienced by a mass released at any velocity into a uniform _____ field. The mass experiencing this type of motion is called a _____. The path of a projectile is called a _____.

Key points:

- Acceleration is _____ (the same throughout the motion)
- Acceleration is always directly _____ (in the same direction as resultant force), whatever the _____ of the motion
- The _____ component of the velocity remains constant (has no acceleration) and can therefore be described using the equation: $\text{speed} = \frac{\text{distance travelled}}{\text{time taken}}$
- The _____ component of the velocity has uniform _____ and can therefore be described using any of the equations of motion
- The trajectory of all projectiles is _____ (shaped like a quadratic graph)

To solve projectile motion problems the vertical and horizontal components of the motion should be treated separately.

Example T8.1

An experiment is carried out, projecting a ball from one building to another. The angle of projection and speed of projection can be varied. The following diagram illustrates the situation: