

QUES 01:-

Two particles are projected in the air with speed v_0 at angles θ_1 and θ_2 (both acute) to the horizontal, respectively. If the height reached by the first particle is greater than that of the second, then tick the right choices

- i. the angle of projection: $\theta_1 > \theta_2$
- ii. time of flight: $T_1 > T_2$
- iii. horizontal range: $R_1 > R_2$
- iv. total energy: $U_1 > U_2$

Sol. Energy is a scalar quantity it doesn't depend on an angle of projection; it depends only on the speed of projection, which is same for both cases.

It is given that height reached by the first particle is greater than that of second and we know that $H \propto \sin^2(\text{Angle of projection})$

Therefore $\theta_1 > \theta_2$, Now for Time we know that it is directly proportional to Angle. Therefore, $T_1 > T_2$

For Range, we can't be sure as for complementary angle they can be equal also.