

DPP -01

- Q.1.** A particle is projected with velocity $(20\hat{i} + 30\hat{j})$ m/s find
- (a) Time of flight _____ (b) Max height _____
- (c) Range _____ (d) t at which particle is at max height _____
- (e) \vec{v} at 1 sec. & 5 sec. _____ (f) t at which $\vec{a} \perp \vec{v}$ _____
- (g) t at which $\vec{a} \perp \vec{s}$ _____
- Q.2.** A man can throw a stone to a maximum height 'h'. The greatest horizontal distance upto which he can throw the stone is
- (a) h (b) 2h (c) $\frac{h}{2}$ (d) 4h
- Q.3.** An oblique projectile is projected with a speed u : It takes time t_1 to reach maximum height and time t_2 to come back to the ground. Air resistance is not neglected then $\frac{t_1}{t_2}$ is
- (a) > 1 (b) < 1 (c) $= 1$ (d) Depends on angle of projection
- Q.4.** The speed of a projectile projected from a level ground at its maximum height is found to be half of its speed of projection (u). Its maximum height is
- (a) $\frac{3u^2}{8g}$ (b) $\frac{3u^2}{2g}$ (c) $\frac{\sqrt{3}u^2}{2g}$ (d) $\frac{3u^2}{4g}$
- Q.5.** A projectile thrown at an angle 30° with horizontal from level ground reaches to maximum height 20m. What will be the maximum height if it is thrown at an angle 60° with same speed?
- (a) 20 m (b) 30 m (c) 50 m (d) 60 m
- Q.6.** A projectile thrown with initial velocity 20m/s at an angle 60° with horizontal, then angle of velocity of projectile with horizontal after time 0.732 s is
- (a) 45° (b) 30° (c) 0° (d) 15°
- Q.7.** A particle is thrown at an angle of projection $\theta = 45^\circ$, with speed u. The average velocity of the particle during its ground to ground flight is
- (a) $\sqrt{2}u$ (b) $\frac{u}{\sqrt{2}}$ (c) $\frac{u}{2}$ (d) Zero

(Physics)

PROJECTILE MOTION

- Q.8.** The range of a bullet fired from a gun at an angle $\left(\frac{\pi}{4} - \phi\right)$ with the horizontal is same as the range of another bullet fired from that gun at angle θ with the horizontal. Then,
- (a) $\theta = \phi$ (b) $\theta = \frac{\pi}{4}$ (c) $\theta = \frac{\pi}{4} + \phi$ (d) $\theta = \phi - \frac{\pi}{4}$
- Q.9.** Two particles are thrown from ground with same speed for same horizontal range R on different paths. If T_1 and T_2 are their time of flight, then $T_1 T_2$ is
- (a) $\frac{R}{g}$ (b) $\frac{2R}{g}$ (c) $\frac{R^2}{g^2}$ (d) $\frac{4R^2}{g^2}$
- Q.10.** Two projectiles P and Q are projected with same speed at angles 60° and 30° with horizontal on level ground then [R = Range, T = Time of flight, H = Maximum height]
- (a) $R_P = 2R_Q$ (b) $T_P = \sqrt{3}T_Q$ (c) $H_Q = 3H_P$ (d) All of these
- Q.11.** A body is projected with same speed at two different angles covers the same horizontal distance R . If T_1 and T_2 are two time of flights, then R is equal to
- (a) $\frac{gT_1 T_2}{2}$ (b) $2gT_1 T_2$ (c) $\frac{\frac{1}{2}gT_1^2 T_2}{(T_1 + T_2)}$ (d) $\sqrt{2}gT_1 T_2$

ANSWER KEY

1. (a) 6sec. (b) 45m (c) 120m (d) 3sec. (e) $\vec{v} = 20\hat{i} + 25\hat{j}$ (f) 3sec.
(g) 6sec.
2. (d) 3. (b) 4. (a) 5. (d) 6. (a) 7. (b) 8. (c)
9. (b) 10. (b, c) 11. (a)

