

IMPORTANT QUESTIONS

- Q.1** Shell is fired upward at an angle θ with the horizontal with the speed V_0 find
1. The time taken by it to reach the maximum height.
 2. Its horizontal range. *(2011)(2002 P.M) (1998)*
- Q.2** Define Projectile Motion. A projectile is thrown in air at an angle θ with the ground level with the velocity "V". Establish the equation for the total time of the flight and the range of the projectile. *(2002) (1995)*
- Q.3** Describe projectile motion explaining the changes in vertical and horizontal component of velocity. Derive expressions for maximum height and range of a projectile. *(2013) (2000) (2006) (2007 Failures) (2006 Failures)*
- Q.4** An object is thrown in air at an angle θ with the horizontal with the velocity V_0 derive the relation.
- (i) The total time of flight
 - (ii) The horizontal range of projectile. *(2004)*
- Q.5** A shell is fired at an angle θ with the horizontal with the velocity. Find the expression for maximum height attained. *(2007 Supply)*
- Q.6** What is the projectile? Give two examples. Give the total time of flight of a projectile and the maximum height a common ball fired with the initial velocity V_0 and making an angle θ with the ground. *(2005 Failures)*
- Q.7** A shell is fired from a gun with velocity V_0 at an angle θ with the ground. Derive the expressions for the maximum height and time of the projectile motion. *(2004 Supply) (2004 Failure)*
- Q.8** Find the angle of projection of a projectile for which its maximum height and horizontal range are equal.
- Q.9** Derive an expression for the centripetal acceleration produced in a body. *(2005) (2003 P.M) (2003 P.E) (2001) (2002 Supp.) (1996) (2006) (2010) (2007) (2006 Failures, 2003 Supply, 2003 Failures), (2012).*
- Q. 10** If a body of mass "m" is moving with a uniform velocity 'v' along a circular path of radius 'r' derive the expression for the centripetal acceleration and centripetal force. *(2008 Failures)*
- Q.11** Define.
- (i) Angular velocity
 - (ii) Angular acceleration
 - (iii) Centripetal force and show that
- (1) $V = r \omega$ (2) $a = r \alpha$ *(2008), (2012)***