

Holidays Home work (Autumn Break)
class - XI (Science) 2017-18
PHYSICS

① Deduce the following formula.

(1) Centripetal acceleration = $\frac{v^2}{r} = r\omega^2$

(2) Time period, horizontal range, max height and equation of trajectory for a projectile

(3) Newton's first law & IIIrd ^{law} from 2nd law.

(4) $v = \left[rg \left(\frac{\tan\theta + \mu}{1 - \mu \tan\theta} \right) \right]^{\frac{1}{2}}$ for banking Road.

(5) $W = \frac{1}{2} mv^2 = \frac{1}{2} mu^2$

(6) Final velocities after elastic head on collision.

(7) Potential Energy of a spring
 $PE = \frac{1}{2} kx^2$

(8) $r = \frac{m_1 r_1 + m_2 r_2}{m_1 + m_2}$

(9) Define τ & L & $\vec{\tau} = \frac{d\vec{L}}{dt}$

(10) Geometrical meaning of angular momentum
 $|\vec{L}| = 2m \left(\frac{dA}{dt} \right)$

(11) M.I. of circular disc / Ring & M.I. about diameter & tangent by way \perp axis & parallel axis theorem.

(12) Equation of motion - (a) Linear Motion. (b) Rotational Motion. } By calculus method

(12) Kepler's laws of Planetary motion & Deduce them.

(13) Variation of g with altitude/depth.

(14) — Escape velocity / orbital velocity

(2) Practical work — 6 practicals
3 activities.

(3) Preparatory Projectwork

→ National children Science Congress.

→ Science exhibition.

(4) Self study — Properties of Matter.
(Solids)

W O W

23/9/17