

Preparation Questions for Section 'C'

Note: Those questions which look short with respect to 07 marks, they can be given with some definitions or differences.

Chapter 2:

1. Addition of Vectors by Rectangular Component
2. Properties of Addition

$$A + B = B + A$$
$$A + (B + C) = (A + B) + C$$

3. Properties of Dot Product

$$A \cdot B = B \cdot A$$
$$A \cdot (B + C) = A \cdot B + A \cdot C$$

4. Properties of Cross Product

$$A \times B = -B \times A$$

Area of Parallelogram

Chapter 3:

1. Elastic Collision (Final Velocities of both bodies)
2. Tension in string (both Cases)
3. Inclined Plane
4. Law of Conservation of Linear Momentum

Chapter 4:

1. All 5 derivations
 - Time to Reach Maximum Height
 - Total Time of Flight
 - Maximum Height
 - Range
 - Equation of Trajectory (Optional)
2. Centripetal Acceleration and Centripetal Force
3. $v = r\omega$ and $a = r\alpha$

Chapter 5:

1. Couple
2. Ladder Problem
3. Law of Conservation of Angular Momentum

Chapter 6:

1. Value of 'g' with altitude or depth
2. Weightlessness and Artificial Gravity

Chapter 7:

1. Absolute Gravitational P.E
2. Law of Conservation of Energy
3. Work done in a conservative field
4. Work Energy Equation

Chapter 8:

1. Simple Harmonic Motion (i.e. To Prove $a \propto -x$)
 - Simple Pendulum
 - Spring Mass System
 - Projection of Uniform Circular Motion
2. Fundamental Frequency and Harmonics (for 1st, 2nd, 3rd and nth)
3. Speed of Sound (Newton's Formula and Laplace's Correction)
4. Beats
5. Doppler's Effect (1st two cases)

Chapter 9:

1. Young's Double Slit Experiment (Formula for Position of fringes and fringe Spacing)
2. Newton's Ring (formula for bright and dark ring)
3. Diffraction by Diffraction Grating (i.e deriving formula $d\sin\theta = m\lambda$)
4. Bragg's Law (X-Ray Diffraction) - ($2d\sin\theta = m\lambda$)

Chapter 10:

1. Thin Lens Formula (For convex and Concave)
2. Simple Microscope (Definition, Construction, Working, Formula for Magnification Diagram)
3. Compound Microscope (Definition, Construction, Working, Formula for Magnification Diagram)
4. Astronomical Telescope (Definition, Construction, Working, Formula for Magnification Diagram)