Course Code: PHS 1453/1553   **Time: 3 hrs**

Course Title : Mechanics   **Max: 75 marks**

<u>Part - A</u>

Answer any five of the following questions   **5 X 15 = 75**

1. Derive expressions for maximum height, time of flight and horizontal range of a projectile.

2. Derive the expression for rotational inertia and Angular momentum of a rigid body rotating about an axis.

3. State Kepler's Law of Areas and prove that the Law of Areas is based on the conservation of angular momentum.

4. Derive an expression for the time period of an object when it executes simple harmonic motion.

5. Write a detail note on the classification of mechanical waves.

6. Derive the Bernoulli's equation

7. Derive the expression for variation of pressure in a fluid at rest

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