

Set A Time: 45 Minutes	<b>PHY 101: Mechanics</b> Class Test 1   15 Marks	Fall 2025 Batch 69 (L1T2)
1	<b>A footballer kicks a ball into the air, and it appears to follow a curved (conical) path.</b> a) What will this path be called if the motion is considered projectile motion? (1) (CO1) b) Show mathematically that the path followed by the ball is parabolic. (4) (CO2)	
2	<b>Two molecules in an isolated jar collide with each other, and an action–reaction force acts between them.</b> a) Which law of motion describes this type of interaction? State the law. (1) (CO1) b) Show mathematically that the linear momentum of the system remains conserved. (3) (CO2)	
3	<b>A golf ball is hit from the ground at 35 m/s at an angle of <math>55^\circ</math>. The ground is level.</b> a) How long is the ball in the air? (2) b) What is the maximum height of the ball? (2) c) A 1500 kg car is combined with another car with a mass of 1000 kg by colliding with it at a velocity of 3 cm/sec. Find the velocity of the cars just after their collision. (2) (CO3)	