

Set A Time: 40 Minutes	PHY 101: Mechanics Class Test 1 15 Marks	Spring 2026 Batch 70 (L1T2)
1	A footballer kicks a ball into the air, and it appears to follow a curved (conical) path. 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	Two molecules in an isolated jar collide with each other, and an action-reaction force acts between them. 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	A golf ball is hit from the ground at 35 m/s at an angle of 55°. The ground is level. a) How long is the ball in the air? (2) b) What is the maximum height of the ball? (2) c) A cyclist starts from the rest and accelerates uniformly to a speed of 10 cm/sec over a distance of 400 cm. Calculate the acceleration of the cyclist and determine the total time it takes for the cyclist to reach the final speed. (2) (CO3)	