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SUBJECT:- PHYSICS CLASS:- IXTH DATE:10/09/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 2. (FORCE & LAWS OF MOTION)(BASED ON NCERT PATTERN)

Question 1. Explain why some of the leaves may get detached from a tree if we vigorously shake its branch.
Answer: When the tree's branch is shaken vigorously the branch attain motion but the leaves stay at rest. Due to the inertia of rest, the leaves tend to remain in its position and hence detaches from the tree to fall down.

Question 2. Why do you fall in the forward direction when a moving bus brakes to a stop and fall backwards when it accelerates from rest?
Answer: When a moving bus brakes-to a stop: When the bus is moving, our body is also in motion, but due to sudden brakes, the lower part of our body comes to rest as soon as the bus stops. But the upper part of our body continues to be in motion and hence we fall in forward direction due to inertia of motion.
When the bus accelerates from rest we fall backwards: When the bus' is stationary our body is at rest but when the bus accelerates, the lower part of our body being in contact with the floor of the bus comes in motion, but the upper part of our body remains at rest due to inertia of rest. Hence we fall in backward direction.

Question 3. If action is always equal to the reaction, explain how a horse can pud a cart?
Answer: The third law of motion states that action is always equal to the reaction but they act on two different bodies.
In this case the horse exerts a force on the ground with its feet while walking, the ground exerts an equal and opposite force on the feet of the horse, which enables the horse to move forward and the cart is pulled by the horse

Question 4. Which of the following has more inertia:
(a) a rubber ball and a stone of the same size?
(b) a bicycle and a train?
Answer: (a) A stone of the same size
(b) a train