Class: XI A

Name: **Subject: PHYSICS**

Topic: Laws of motion   **Date:**

1. A thief jumps from the roof of a house with a box of weight W on his head. What will be the weight of the box as experienced by the thief during jump?
2. Which of the following is scalar quantity? Inertia, force and linear momentum.
3. Action and reaction forces do not balance each other. Why?
4. A bird is sitting on the floor of a wire cage and the cage is in the hand of a boy. The bird starts flying in the cage. Will the boy experience any change in the weight of the cage?
5. Why does a cyclist lean to one side, while going along curve? In what direction does he lean?
6. How does banking of roads reduce wear and tear of the tyres?
7. A monkey of mass 40 kg climbs on a rope which can stand a maximum tension 600N. In which of the following cases will the rope break? The monkey
   (a) climbs up with an acceleration of $6m/s^2$
   (b) climbs down with an acceleration of $4m/s^2$
   (c) climbs up with a uniform seed of 5m/s
   (d) falls down the rope freely under gravity.
   Take g = $10m/s^2$ and ignore the mass of the rope.
8. What is meant by coefficient of friction and angel of friction? Establish the relation between the two?
9. A block of mass 10kg is sliding on a surface inclined at an angle of 30° with the horizontal. Calculate the acceleration of the block. The coefficient of kinetic friction between the block and the surface is 0.5
10. State and prove the principle of law of conservation of linear momentum?
11. A particle of mass 0.40 kg moving initially with constant speed of 10m/s to the north is subject to a constant force of 8.0 N directed towards south for 30s. Take at that instant, the force is applied to be t = 0, and the position of the particle at that time to be x = 0, predict its position at t = -5s, 25s, 30s?