Class: XI A

Name: Subject: PHYSICS

Topic: Laws of motion   Date:

1. What is the unit of coefficient of friction?
2. Name the factor on which coefficient of friction depends?
3. What provides the centripetal force to a car taking a turn on a level road?
4. Give the magnitude and direction of the net force acting on
   (a) A drop of rain falling down with constant speed.
   (b) A kite skillfully held stationary in the sky.
5. Two blocks of masses m_1, m_2 are connected by light spring on a smooth horizontal surface. The two masses are pulled apart and then released. Prove that the ratio of their acceleration is inversely proportional to their masses.

6. A shell of mass 0.020kg is fired by a gun of mass 100kg. If the muzzle speed of the shell is 80m/s, what is the recoil speed of the gun?
7. A train runs along an unbanked circular bend of radius 30m at a speed of 54km/hr. The mass of the train is 106kg. What provides the necessary centripetal force required for this purpose? The engine or the rails? What is the angle of banking required to prevent wearing out of the rail?
8. Three identical blocks each having a mass m, are pushed by a force F on a frictionless table as shown in figure
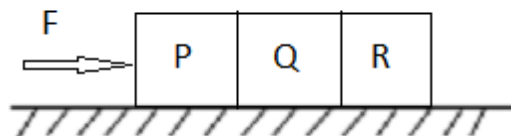
   What is the acceleration of the blocks? What is the net force on the block P? What force does P apply on Q. What force does Q apply on R?
9. (a) Define impulse. State its S.I. unit?
   (b) State and prove impulse momentum theorem?