INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet –PHYSICS

Chapter : LAWS OF MOTION(Ch 5)

1. An object placed on the surface of the earth is at rest. What can you say about the forces acting on it?
2. State Newton's laws of motion
3. A car moving with uniform velocity. What is the net force acting on it? What can you say about the forces acting on it?
4. Define momentum of a body. What is the formula to find out momentum? Is it a scalar or vector quantity?
5. Show that $F=ma$ .What is the SI unit of Force
6. An external force is required to keep a body in uniform motion. Clarify.
7. When the bus starts suddenly, a person standing in the bus get thrown backward with a jerk Why?
8. Why is it easier to pull a body than to push it?
9. What is banking of road?
10. What is friction ,its advantages and disadvantages
11. explain how to increase and decrease friction
12. Define law of static friction and dynamic friction.
13. Derive an expression for velocity of a car moving on a circular banked road
14. A student pushes a loaded sled whose mass is 240 kg for a distance of 2.3 m over the frictionless surface of a frozen lake. He exerts a horizontal force equal to 130 N. If the sled starts from rest, what is its final velocity? {1.6 m/s}
15. A constant force acting on a body of mass 3.0 kg changes its speed from 2.0 m/s to 3.5 m/s in 25 s. The direction of the motion of the body remains unchanged. What is the magnitude and direction of force? (0.18N)
16. A trolley of mass 1000 kg is moving with a speed of 5 m/s. Sand is dropped onto it at the rate of 30 kg/min. What is the force needed to keep the trolley moving with a uniform speed?(2.5 N)
17. A mass of 6 kg is suspended by a rope of length 2 m from a ceiling If force 50 N in the horizontal direction is applied at the midpoint of the rope as shown in fig, what is the angle the rope makes with the vertical in equilibrium (take g=10 m/s2
18. A shell of mass 0.020 kg is fired by a gun of mass 100 kg. If the muzzle speed of the shell is

80 m/s, what is the recoil speed of the gun? { 0.016m/s)

19. A block of mass 2 kg is placed on the floor. The coefficient of static friction is 0.4. A force of 2.5 N is applied on the block horizontally. What is the force of friction between the block and the floor? ($g = 10m/s^2$)

20. The rear side of a truck is open and a box of 40 kg mass is placed 5 m away from the open end. The coefficient of friction between the box and the surface below it is 0.15. On a straight road, the truck starts from rest and accelerated with 2 m/s^2. At what distance from the starting point does the box fall off the truck? {20 m}