

# INTERNATIONAL INDIAN SCHOOL BURAIDAH

## Worksheet –PHYSICS

### Chapter: WORK ENERGY POWER(Ch 6)

- A car comes to a skidding stop in 20 m. During this process, the force on the cart due to the road is 400 N and is directly opposed to the motion.
  - How much work does the road do on the car?
  - How much work does the car do on the road? {- 8000J, 0}
- The momentum of a body is increased by 50%. By what percent does its KE change? {125%}
- Two masses of 1 g and 4 g are moving with equal KE. What is the ratio of magnitudes of linear momenta? {1/2}
- A body of mass 2 kg initially at rest moves under the action of an applied horizontal force of 7 N on a table with coefficient of kinetic friction = 0.1. Compute the
  - work done by the applied force in 10 s
  - work done by friction in 10 s
  - work done by the net force on the body in 10 s
  - change in KE of the body in 10 s
- A block of mass 2 kg is dropped from a height of 40 cm on a spring whose force constant is 1960 N/m. What will be the maximum compression of the spring? {10 cm}
- A trolley of mass 300 kg carrying a sandbag of 25 kg is moving uniformly with a speed of 27 km/h on a frictionless track. After a while, sand starts leaking out of a hole on the floor of the trolley at the rate of 0.05 kg/s. What is the speed of the trolley after the entire sand bag is empty?
- A trolley of mass 200 kg moves with a uniform speed of 36 km/h on a frictionless track. A child of mass 20 kg runs on the trolley from one end to the other (10 m away) with a speed of 4 m/s relative to the trolley in a direction opposite to its motion, and jumps out of the trolley. What is the final speed of the trolley? How much has the trolley moved from the time the child begins to run? {10.36 m/s, 25.9 m}
- A moving body of mass  $m_1$  strikes a stationary body of mass  $m_2$ . The masses  $m_1$  and  $m_2$  should be in the ratio  $m_1/m_2$  so as to decrease the velocity of the first body by 1/2 in a perfectly elastic impact. What is the ratio  $m_1/m_2$ ?