KEC

# K Education Centre



## GCSE Physics Energy P1

Energy Changes Assignment -2

Assignment Questions

**Conservation and dissipation of energy Part -2**

Q 1: Explain the energy changes when work is done to overcome the friction in case of stopping of a moving car.

Q2 : A student push trolley of weight 100 N up a slope of length 25 m with a force of 10 N. The height of slope is 1.5 m .

a) Calculate the increase in the gravitational potential energy store of the trolley.
b) Calculate the work done by the student.
c) if the student pushed the trolley up the slope at constant speed, explain why all the work done by the student was not transferred to the gravitational potential energy store of the trolley.

Q3 : A stone is fired into the air from a catapult and falls to the ground some distance away. Describe the energy transfers that take place after the catapult is released.

a) A stone of mass 0.020 kg is catapulted into the air at a speed of 25 m/s. It reaches a height of 10 m before

it descends and hits the ground some distance away. Calculate its initial kinetic energy.

b) Calculate the increase in the gravitational potential energy store of the stone when it reached its maximum height (g = 9.8 N/kg).

Q4 : When a cyclist brakes, his kinetic energy store is reduced from 2000 J to zero in a distance of 8.0 m. Calculate the braking force.

Q5 : A car is brought to a standstill when the driver applies the brakes.

a) Explain why the brake pads become warm.
b) The car travelled 25 metres after the brakes were applied. The braking force on the car during this time was 6000 N. Calculate the work done by the braking force.

Q6 : A man drops stone weighing 5 kg from top of ladder of length 4 m . What will be the velocity of the stone just before it hits the ground. ( g = 9.8 m /$s^2$)

Q7 : Calculate the work done by the brakes of the car of mass 1000 kg when its speed is reduced from 20 m/s to 10 m/s.