

**The City School**

North Nazimabad Boys Branch

Grade: 9

**Subject : Physics**

**Topic: Work Energy and Power**

**Teacher: Faisal Sarfaraz**

Q1: State briefly the energy changes in the production of electricity from

1. The burning of coal.
2. Wind power
3. Nuclear fission

Q2: A boy of mass 30kg runs up a flight of stairs to a floor which is at a height of 5.5m in 6seconds. Taking the weight of 1kg = 10 N. Calculate

1. The work done against the gravity
2. Average power developed by the boy

Q3: A petrol-driven car accelerates from rest to its cruising speed along a straight level road….

1. state the principal energy changes in the car and its surroundings
2. the car now climbs a slope with no change of speed. Explain whether the rate of petrol consumption will increase, stay the same, or decrease

Q4: The useful power output of a small dc motor is used to raise a load of 0.75kg through a vertical distance of 1.2m. The time taken is 18.0s. The voltage across the motor and the current through it are constant at 6.0V and 0.30A respectively. Assuming that the gravitational force on a mass of 1.0kg is 10N, calculate

1. the power input to the motor
2. work done in raising the load
3. useful power output developed by the motor

Q5: A bricklayer lifts 12 bricks each weighing 20 N a vertical height of 1.2 m in 30 s. and place them at rest on a wall. Calculate

(a) the work done

(b) the average power needed

Q6: The figure below shows a simple pulley system. Calculate

1. the work done by the men in lifting the load
2. the gravitational potential energy gained by the load
3. the efficiency of the pulley system

