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SUBJECT:- PHYSICS CLASS:- IXTH DATE:20/07/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 4. (WORK, ENERGY & POWER)(BASED ON NCERT PATTERN)

Q1. Certain force acting on a 20 kg mass changes its velocity from 5 m/s to 2 m/s. Calculate the work done by the applied force.

Ans. mass = 20 kg
u = 5m/s
v = 2m/s
W = ?
W = F × s

$$= ma\left(\frac{v^2-u^2}{2a}\right)$$

$$= 20 \times a \times \left(\frac{(2)^2-(5)^2}{2a}\right)$$

$$= 20 \times \left(\frac{4-25}{2}\right)$$

$$= 10 \times (-21) = -210J$$

Q2. An object of mass 40 kg is raised to a height of 5 m above the ground. What is its potential energy. If the object is allowed to fall, find its kinetic energy when it is half-way down.

Ans. Mass = 40 kg, h = 5 m ,P.E. = ? [g = 10 m/ s^2]

P.E. = mgh

P.E = 40 × 10 × 5

P.E = 200 J . When the object falls the potential energy gets transformed into kinetic energy. When the object is half way down.

$$\text{P.E. = will become half i.e., } \frac{2000}{2} = 1000 \text{ J and P.E. = K.E.}$$

$$\therefore \text{ Kinetic Energy} = 1000 \text{ J}$$