SUBJECT:- PHYSICS   CLASS:- IXTH   DATE:26/11/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 3. (GRAVITATION REVISION)(BASED ON NCERT PATTERN)

Question 1 . An object thrown at a certain angle to the ground moves in a curved path and falls back to the ground. The initial and the final points of the path of the object lie on the same horizontal line. What is the work done by the force of gravity on the object?
Ans:- Since the body returns to a point which is on the same horizontal line through the point of projection, no displacement has taken place against the force of gravity, therefore, no work is done by the force due to gravity.

Question 2 . A battery lights a bulb. Describe the energy changes involved in the process.
Ans:- Within the electric cell of the battery the chemical energy changes into electrical energy. The electric
energy on flowing through the filament of the bulb, first changes into heat energy and then into the light energy.

Question 3 . Certain force acting on a 20 kg mass changes its velocity from 5 m s^{-1} to 2 m s^{-1}. Calculate the work done by the force.

Ans:-

Work done by the force is equal to the change in kinetic energy produced in the body.

Now, $m = 20$ kg, $u = 5$ m s^{-1}, $v = 2$ m s^{-1}, W = ?

Using the expression $W = \dfrac{1}{2} mv^2 - \dfrac{1}{2} mu^2$, we have

$$W = \frac{1}{2} m(v^2 - u^2) = \frac{1}{2} \times 20\,((2)^2 - (5)^2)$$

Or $W = -210$ J

The negative sign indicates that work has been done in slowing the body.