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SUBJECT:- PHYSICS

CLASS:- IXTH

DATE:-17/02/XXI

SUBJECT TEACHER:- MR. NEEL NIRANJAN

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

Question 1.. Does the transfer of energy take place when you push a huge rock with all your might and fail to move it? Where is the energy you spend going?

Ans:- Energy transfer does not take place as no displacement takes place in the direction of applied force. The energy spent is used to overcome inertia of rest of the rock.

Question 2.. A certain household has consumed 250 units of energy during a month. How much energy is this in joules?

Answer:-

$$\begin{aligned}\text{Energy consumed in a month} &= 250 \text{ units} \\ &= 250 \text{ kW h} \\ &= 250 \text{ kW} \times 1 \text{ h} \\ &= 250 \times 1000 \text{ W} \times 3600 \text{ s} \\ &= 900,000,000 \text{ J} = 9.0 \times 10^8 \text{ J}\end{aligned}$$

Question 3. What is the work done by the force of gravity on a satellite moving round the earth? Justify your answer.

Answer:- When a satellite moves round the Earth, then at each point of its path, the direction of force of gravity on the satellite (along the radius) is perpendicular to the direction of its displacement (along the tangent). Hence, the work done on the satellite by the force of gravity is zero.

Question 4. An object of mass 40 kg is raised to a height of 5 m above the ground. What is its potential energy?

Answer:- If the object is allowed to fall, find its kinetic energy when it is half-way down