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SUBJECT:- PHYSICS CLASS:- IXTH DATE:-07/01/XXI

SUBJECT TEACHER:- MR. NEEL NIRANJAN

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

Question 1. Can there be displacement of an object in the absence of any force acting on it? Think. Discuss this question with your friends and teacher.
Answer:- The answer is both Yes and No. Yes because when an object moves in deep space from one point to another point in a straight line, the displacement takes place, without the application of force. No, because force cannot be zero for displacement on the surface of earth. Some force is essential.

Question 2. **A person holds a bundle of hay over his head for 30 minutes and gets tired. Has he done some work or not? Justify your answer.**
Answer:- The person does not do work because no displacement takes place in the direction of applied force as the force acts in the vertically upward direction.

Question 3. An **electric heater is rated 1500 W. How much energy does it use in 10 hours?**
Energy consumed by an electric heater can be obtained with the help of the expression,
Answer:- P=W/t
where,
Power rating of the heater, P = 1500 W = 1.5 kW
Time for which the heater has operated, t = 10 h
Work done = Energy consumed by the heater
Therefore, energy consumed = Power × Time
= 1.5 × 10 = 15 kWh
Hence, the energy consumed by the heater in 10 h is 15 kWh or 15 units.

Question 4. An object of mass, m is moving with a constant velocity, v. How much work should be done on the object in order to bring the object to rest?
Answer:- Kinetic energy of an object of mass m moving with a velocity v is given by the expression $1/2mv^2$. To bring the object to rest, an equal amount of work i.e. $1/2mv^2$ is required to be done on the object.