

Hw
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ch-3

Energy
Exercise

Date

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Q14) Name the form of energy which a wound up watch spring possesses.

Ans) A wound up watch spring has the potential energy because of its wound up state. As the spring unwinds itself, the potential energy changes into the kinetic energy. This kinetic energy does work in moving the arms of watch.

Q15) Can a body possess energy even when it is not in motion? Explain your answer with an example.

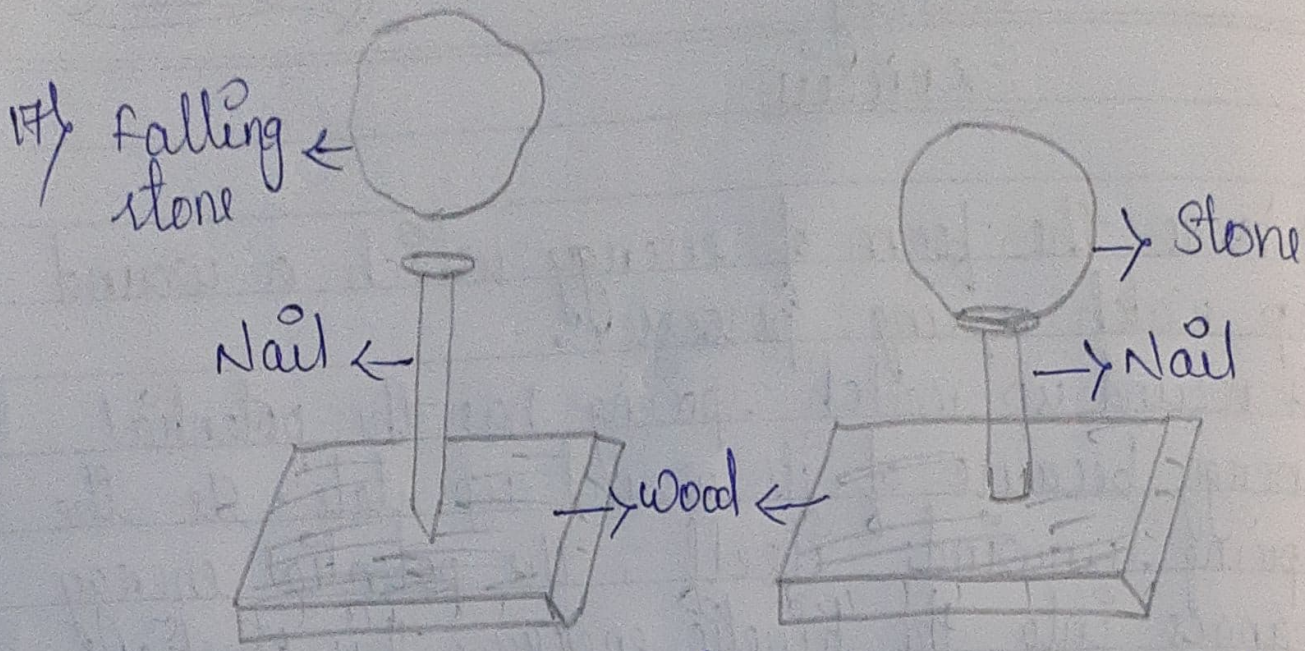
Ans) Yes, a body possesses energy even when it is not in motion. ~~Example:~~ Example:

Consider a body raised to a certain height say h . At its velocity is zero. Kinetic energy will $P.E = mgh$.

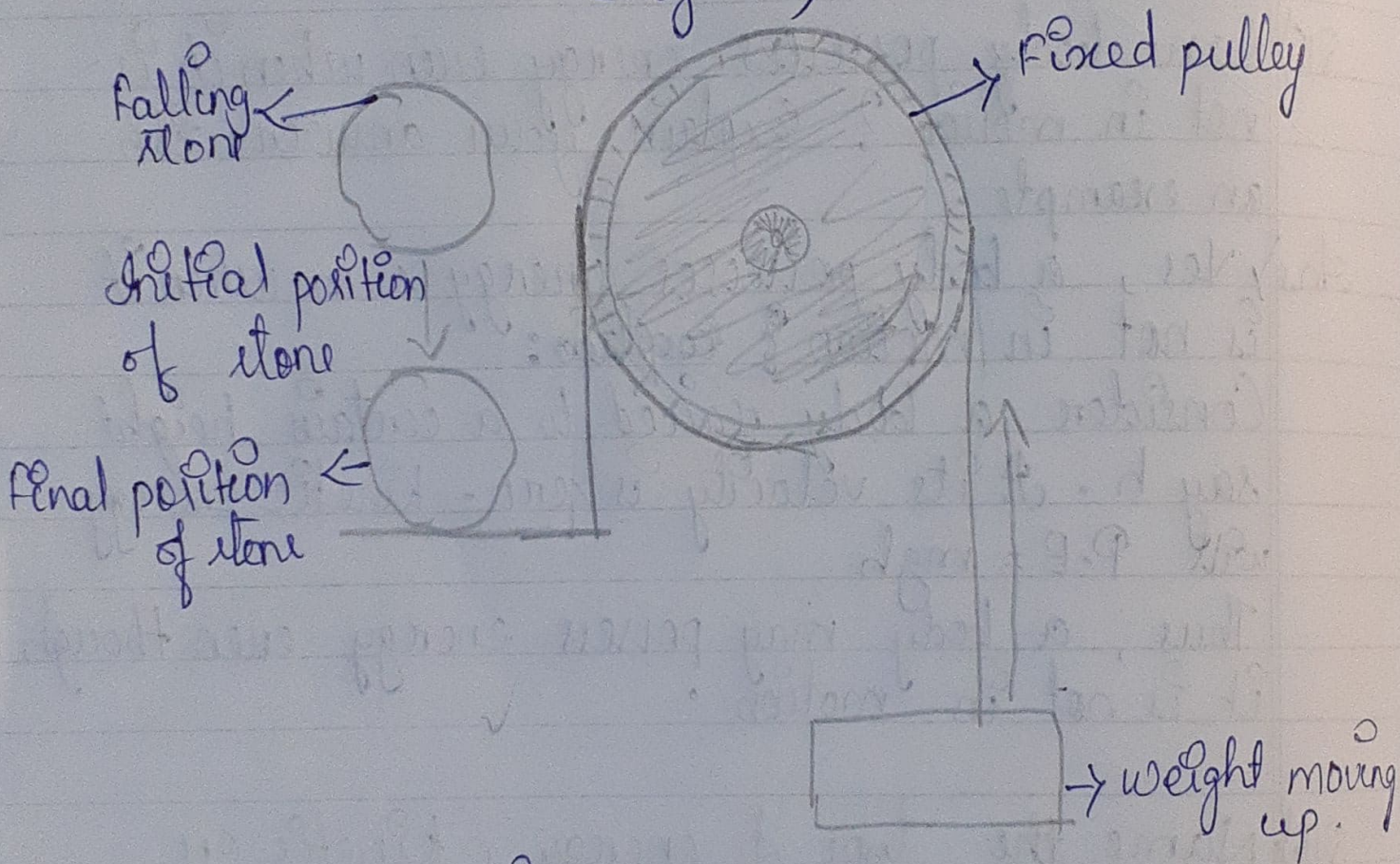
Thus, a body may possess energy even though it is not in motion.

Q16) Name the type of energy (Kinetic or potential) possessed by the following:-

- i) A moving cricket ball - Kinetic energy
- ii) A stone at rest on the top of a building - Potential energy
- iii) A compressed spring - Potential energy
- iv) A moving bus - Kinetic energy
- v) A bullet fired from a gun - Kinetic energy
- vi) Water flowing in a river - Potential energy
- vii) A stretched rubber band - Potential energy.



A falling stone drives the nail into the wood (Fig - 1)



A falling stone lifts a weight up (Fig - 2)

Q77) Give one example to show the conversion of potential energy to kinetic energy when put in use.

Ans) The example to show the conversion of potential energy to kinetic energy when put in use:

A stone at a height has the potential energy due to its lifted or raised position. In the fig 1, when the stone is dropped from that position, it begins to fall. The falling stone has the kinetic energy. Thus, Potential energy stored in the stone in its raised position changes into the kinetic energy when the stone is falling. This kinetic energy does work on the nail as the stone strikes the nail and makes the nail to move into the wood.

Similarly, in the figure 2, the potential energy possessed by the stone - at a height changes into its kinetic energy when it falls. The kinetic energy of the falling stone does work in raising the weight upwards.