

## Exercise

Q) Short / long answer questions.

① Define work.

ans) When a force is applied on a body and there is displacement of the body, work is said to be done.

② When does a force perform work?

ans) Work is said to be done only when force applied on a body makes the body move.

③ State two conditions when no work is done by a force?

ans) When we ~~pull~~<sup>push</sup> the wall of our house, we apply much force but the wall does not move therefore no work is done here.

→ When we try to ~~push~~<sup>pull</sup> a big rock, even though we apply much force, ~~the~~ rock is not moved - so, no work is done.

④ A coolie is moving on a road with a luggage on his head. Does he perform work against the force of gravity? Give reason.

ans) Gravitational force pulls objects towards ground. So, here the coolie is holding the luggage on his head as a result he is pushing the luggage opposite to gravitational force as gravity is pulling the luggage towards ground. Therefore we can say that ~~no~~ work performed by the coolie is against gravity.

⑥ The moon is revolving around the Earth in a circular path. How much work is done by the moon?

ans → The work done by moon during one circular motion is zero as the force acting between the Earth and Moon is gravitational force which is conservative in nature.

⑦ Write the exp. for work done by force?

ans →  $Work = Force \times \text{distance moved in direction of force.}$

⑧ State the SI unit of work and define it.

ans → SI unit of work is Joules (J).

→ One Joule (J) is said to be done if one newton (N) force when acting on a body moves it by 1 metre (m) in the direction of force.

⑨ State two factors on which the work done on a body depends.

ans → Work done on a body depends on -

\* Magnitude of force applied.

\* Distance moved in direction of force.

⑩ & ⑪ Define Energy and state its SI unit.

ans → Energy is defined as the capacity of doing work and its SI unit is Joule (J).

Q2 Define 1 Joule of energy.

ans → ~~1 Joule~~ A body is said to possess an energy of 1 Joule when it can do 1 Joule work or 1 Joule work is done on it.

Q3 How is work related to energy?

ans → Work and energy have a direct relationship that work done on a body in changing its state is said to be the energy possessed by the body.

Q4 What are two kinds of mechanical energy?

ans → Mechanical energy is of Potential and Kinetic energy.

Q5 What is potential energy? State its unit.

ans → The energy possessed by a body due to its state of rest or ~~motion~~ position is called Potential energy.

→ SI unit of P.E. is Joule (J)