1. Define work

Sol: Work is the energy transferred to or from an object via the application of force along a displacement. In its simplest form, it is often represented as the product of force and displacement.

2. When does a force perform work?

Sol: Work is said to be done when the applied force makes the body move.

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

Sol: Two conditions when no work is done by force are:
(i) There is no displacement of the body, i.e. $S=0$
(ii) The displacement is Normal to the direction of force, i.e. - $\theta = 90$ degrees

4. In which of the following cases is work being done
a) A boy pushing a heavy rock
✓b) A boy climbing up the stairs.
c) A coolie standing with a box on his head.
d) A girl moving on the road.

5. A coolie is moving on a road with a luggage on his road. Does he perform work against the force of gravity? Give reason for your answer.

Sol: A coolie carrying luggage on his head moving on ground does no work against the force of gravity as displacement is normal to the direction of ~~force~~ the force of gravity.

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

Sol: When the moon revolves around the earth, the displacement is normal to the direction of force on the moon. Therefore no work is done by the moon.

7. Write the expression for work done by a force
Sol: Work done by applying force F is the product of force applied on the body and the distance moved by the body in the direction of force
Work done = Force X Distance moved in the direction of force.
W = F X D

8. State the S.I. unit of work and define it.
Sol: S.I. unit of work is 'Joule'
Work done when a force of 1 Newton displace the body through a distance of 1 metre in the direction of force.

9. State two factors on which the work done on a body depends.
Sol: The two factors on which the work done on a body depends are:

(i) Magnitude of force applied (F)
(ii) Distance moved by the body in the direction of force (d) or displacement (S)

10. Define the term energy.
Sol: The capacity of doing work is called energy.

11. State the S.I. unit of energy.
Sol: The S.I. unit of energy is 'Joule'.

12. Define 1 Joule of energy.
Sol: 1 Joule of energy is the capacity of a body to work of 1 Joule irrespective of time taken.