Answer on Question #42348-Physics-Mechanics-Kinematics

A. If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

B. If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

C. If Assertion is True but the Reason is False.

D. If both Assertion & Reason are False.

Assertion :- A body may gain kinetic energy and potential energy simultaneously.

Reason :- Conservation of mechanical energy may not be valid every time.

(1) A (2) B (3) C (4) D

Solution

Assertion is True: A body may gain kinetic energy and potential energy simultaneously. Whenever work is done upon a body by an external force (or nonconservative force), there will be a change in the total mechanical energy of the object. Thus kinetic energy and potential energy can increase simultaneously.

Reason are False: Conservation of mechanical energy may not be valid in presence an external forces (or nonconservative forces).

Answer: (3) C.