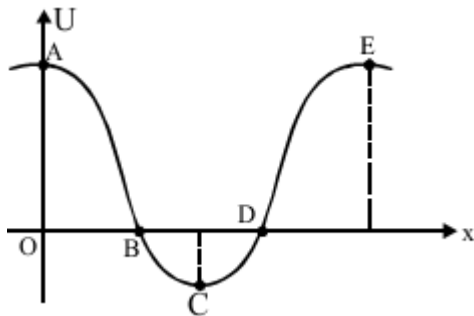


### Answer on Question #41245 – Physics – Mechanics | Kinematics | Dynamics

These questions consist of two statements each, printed as Assertion and Reason. While answering these Questions you are required to choose any one of the following four responses.

- A. If both Assertion and Reason are True and the Reason is a correct explanation of the Assertion.
- B. If both Assertion and 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 and Reason are false.

Assertion: - The potential energy of a particle varies with distance  $x$  as shown in figure. The force acting on the particle is zero at points C and E.



Reason: - Potential energy is defined only for conservative force field.

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

#### Solution

Assertion is **True**. The force acting on the particle is zero at points C and E, because at these points the derivative of potential energy of a particle is zero. The force acting on the particle is

$$F(x) = -\frac{dU}{dx}.$$

So, the force acting on the particle is really zero at points C and E.

Reason is **false**. It does not concern to our assertion.

**Answer: (3) C.**