A particle is moving in 1 dimension, under the influence of only conservative forces. The potential energy function $U(x)$ is shown below.

The particle starts at position $x_0$ moving to the left, and has total energy $E$ which is shown in the figure.

Choose all of the following that are true? Answer:

(a) The particle is initially nearly at rest in a neutral equilibrium.
(b) The particle slows down until it reaches point A, then stops, and goes back to the right.
(c) The particle slows down until it reaches point A, then speeds up until it reaches $x = 0$, then slows down until it comes to a halt at point B, then reverses direction.
(d) The particle can never reach point C.
(e) The particle moves up and down, until it reaches point C with maximum velocity.
(f) The particle slows down until it reaches point A, then speeds up until it reaches $x = 0$, then slows down until it comes to a halt at point C, then reverses direction.
(g) The particle slows down until it reaches point A, then comes to rest at $x = 0$.
(h) The particle speeds up until it reaches point A, then comes to rest at $x = 0$ then speeds up until it reaches point C.
(i) The particle can never reach point A.
(j) The particle has maximum velocity at point A, then comes to rest at $x = 0$. 
