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First name: 

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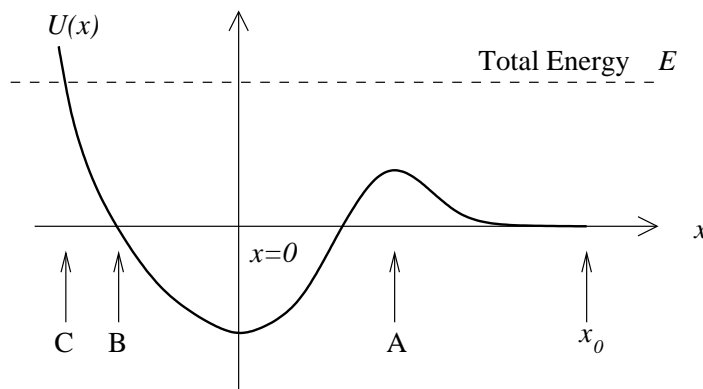
No Name = No grade. Write your name **NEATLY**. If I can't read it, you get **NO** credit.

Circle your section:      810      811      812

Failure to circle the correct section will delay the return of this quiz.

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  $x = 0$ .