

Name: \_\_\_\_\_

**PHYS 451: Quantum Mechanics I, Quiz #2**

An eigenstate of some 1D quantum system is known to be  $\psi(x) = Ce^{-\alpha x^4}$ , where  $C$  and  $\alpha$  are real constants. Find the potential of the system and the eigenenergy corresponding to the above state. Make a sketch of the potential.