Theoretical Models for Computing

Quiz #6

Student Name: Student ID:

1. Consider the following function:
$f(x) = 3 + 6x + 5x^2 + 3x^3 + 4x^4$
Locate the minimum by finding the root of the derivative of this function. Use bisection with initial guesses of xl = -2 and xu = 1.
2. Employ the following methods to find the maximum of the function from the following function:
$f(x) = -x^4 - 2x^3 - 8x^2 - 5x$
(a) Golden-section search (xl = -2, xu = 1, εs = 1%).
(b) Parabolic interpolation (x0 = -2, x1 = -1, x2 = 1, iterations = 4). Select new points sequentially as in the secant method.
(c) Newton's method (x0 = -1, εs = 1%).