

SIIT GTS211 Section 1 First Semester 2006 Dr. Ruben

Quiz 4

Each correct answer = 25 points, each incorrect answer is -6 points.

Problem 1. Round-off the following numbers using 4 significant digits, and represent them in scientific notation. 21.3000, 0.0059821, 122.1289

1. .2130E02, .5982E-02, .1221E03
2. .213E04, .59821E-2, 12.21E03
3. 2130E02, 598E-2, 1221E03
4. 0.021E04, 598E2, 1.221E03
5. 0,002130E02, .598E2, 12.21E03

Problem 2. The value of π rounded to 15 significant digits, is $\pi \approx 3.14159265358979\dots$. Write π with 6 significant digits and evaluate the error bound β .

1. $\pi \approx 3.14159265358979E-1$, $\beta = .5 \times 10^{-5}$
2. $\pi \approx .314159E01$, $\beta = .5 \times 10^{-5}$
3. $\pi \approx .314159265358979E-6$, $\beta = .5 \times 10^{-6}$
4. $\pi \approx .314159$, $\beta = .5 \times 10^6$
5. $\pi \approx 314159.265358979E-6$, $\beta = .5 \times 10^{-5}$

Problem 3. Let $x_1 = 37.3456$, $x_2 = 0.0335982$, $x_3 = 44.6134$. Rounding-off these numbers to 3 significant digits and adding them: $S = x_1 + x_2 + x_3$ the total error bound for the sum is

1. $\beta = 10^{-1} + .5 \times 10^{-4}$
2. $\beta = .5 \times 10^{-5}$
3. $\beta = .5 \times (10^{-1} + 10^{-8})$
4. $\beta = .5 \times 10^{-2}$
5. $\beta = .5 \times 10^{-6}$

Problem 4. Find the root of the equation $f(x) = 3x^4 - 12x + 6$ in the interval (0, 1). Perform 3

iterations, starting with $x = 0.5$ and using the equation $x = \frac{3x^4 + 6}{12}$. The answer, with 5 significant

digits is (you can round your final answer to 5 significant digits, but you must work with all the digits of your calculator memory, including those not shown in the screen)

1. 15.456E-3
2. 0.03333
3. .51795E-05
4. 0.51
5. 0.51795