ENSC 180: Introduction to Engineering Analysis

Assignment 1

Due: 6.00 p.m., January 21, 2018

1. Indicate whether the following variable names are acceptable in MATLAB (14 marks).
   a) Wildcard
   b) WILDCARD
   c) *Wildcard
   d) 2Wildcard
   e) Wild_card
   f) Wildcard!!
   g) wild_card

2. Consider the arrays, x= <1 2 3 4 5> and y = <7 8 9>. Build matrices C in MATLAB using x and y such that C is 5x5, 5x2, 2x5, 3x3, 3x1, 2x8 and 7x6 (14 marks).

3. Write MATALAB statements to evaluate the following functions (16 marks).
   a) $\sin(\tan(x)) - \tan(\sin(x))$
   b) $e^{-0.7x} + (1-\cos(x))/(1.0+\tan^2(x))$
   c) $(1+x/(x-0.5))/(1+(3.1xe^{-x}+2)/(\sin(x)-\cos^2(x^2)))$
   d) $3.0^{0.25}+\ln(2.1^{3.7}) + \tan^{-1}(0.63)$

4. Plot the functions in 3a, 3b and 3c using MATLAB over the range $-2\pi < x < 2\pi$ (12 marks).

5. Consider the array [3.1 5.8 6.2 2.1 7.0 5.0 8.2 4.6]. Using MATLAB, find the size, minimum and maximum values, mean and median values, the standard deviation of this array and sort it starting from the minimum value (14 marks).

6. Solve Question 2.26 in the textbook (30) marks.