Mansoura University	Computer Applications	Final Exam - Jan., 2014
Faculty of Engineering		Time : 3 Hours - Full Mark (60)
Prod & Mech. Design Dept.		For First Year Prod Dept. Students

Question1:(10 Marks)

Construct and draw Flow Charts to find the followings:

1. The highest and lowest of given three numbers A, B and C.
2. Roots of Quadratic Equation $ax^2 + bx + c = 0$, mentioning roots types.

Question2:(10 Marks)

1. Write a Matlab Program to find the highest and lowest of given (n) numbers.
2. Given a triangle of vertices (x0,y0),(x1,y1),(x2,y2). Write a Matlab Function to accept these coordinates and return the triangle's Circumference and Area.

Question3:(10 Marks)

Given the following matrices, show how can you input them to MATLAB, then find the results of the following operations:

$$A = \begin{bmatrix} 1 & 3 & 4 \\ -7 & 6 & -5 \\ 8 & -9 & 20 \end{bmatrix}, \quad B = \begin{bmatrix} 11 & 12 & -4 \\ 7 & 60 & -5 \\ -8 & 90 & 10 \end{bmatrix}$$

1-	D = A * B	2-	E = max(A)	3-	T = det(A)	4-	H = A .* B
5-	P = B(2:3, 1:2)	6-	R = inv(B)	7-	N = diag(B)	8-	K = sum(B)

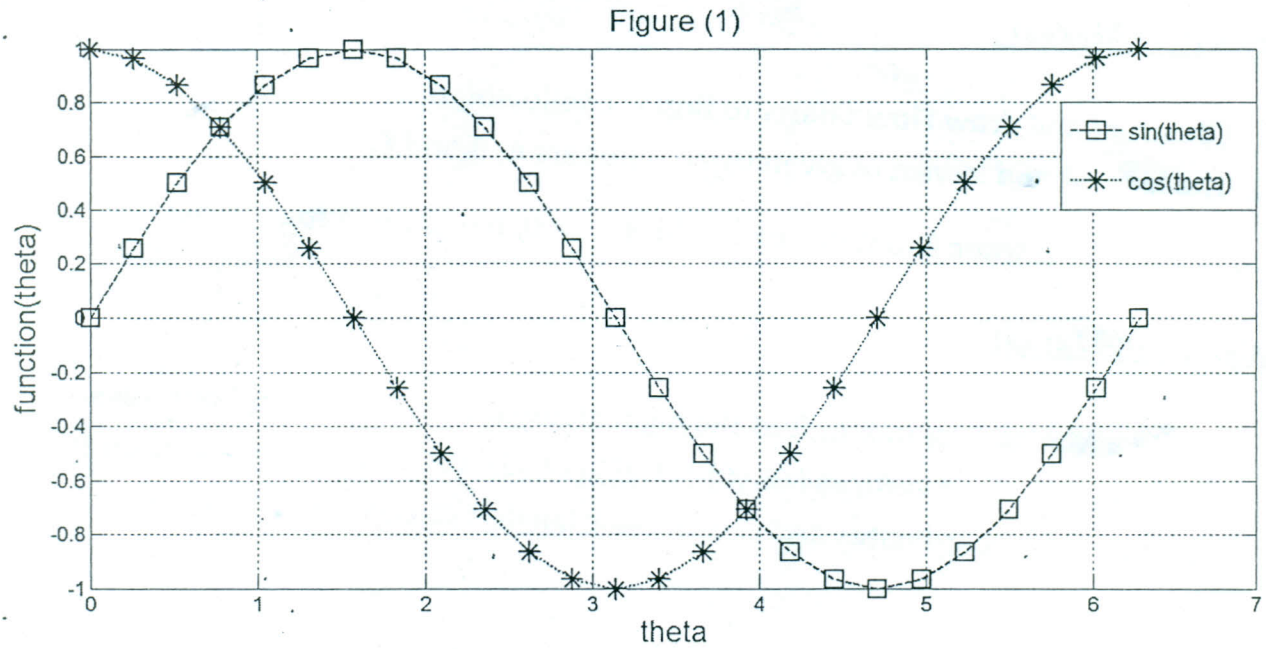
Question4:(10 Marks)

For the following ten numbers and variables shown in the table, find which of them is <u>not acceptable</u> in MATLAB environment and <u>state why</u>:

1-	$fg	2-	2W	3-	abcd)	4-	E2#	5-	whos
6-	9,5	7-	8e2	8-	6.e6	9-	56'54	10-	255/3E-2

Question5:(10 Marks)

Using MATLAB Commands, draw the following figure considering all details:



Question6:(10 Marks)

An exam has been made for a group of students which resulted in the following marks 50, 65, 88, 45, 36, 54, 85, 91, 66, 75, 83, 55, 95, 80, 89, 56, 73, 77, 67, 40, 55, 58, 61. Consider the total mark of that exam is 100 and each mark corresponds to a certain grade as shown in the table below.

Write a Matlab program to do the following:

a) Find the minimum and maximum marks.
b) Calculate the average mark.
c) Print out the number of students who have got grades A, B, C, D, E and F.
d) Make a bar chart for the previous requirement.

Marks Range	Grade
90 to 100	A
80 to 90	B
70 to 80	C
60 to 70	D
50 to 60	E
Less than 50	F

Good Luck,

Dr. Ahmed Galal