جامعة المنصورة — التاريخ: ٢٠١٣/٩/١١

كلية الهندسة — المادة: لغات البرامج وترجمتها

قسم الرياضيات والفيزياء الهندسية (تمهيدي ماجستير) — الزمن: ٣ ساعات

أجب على جميع الأسئلة

1]

a- Write a Function to plot contours of a function of two variables $z = x^2 + y^2$, begin from x and y equals 0 to π in steps of $\pi/10$.

b- Write a code to plot the quadratic $x^2 + 7x - 3$ from x equals -3 to 3 in steps of 0.2 .

c- Write a code to calculate the expression ${}^nC_m$ for a variety of values of n and m , where:

$$ {}^nC_m = \frac{n!}{m!(n-m)!} $$

2]

a- Write a code to calculate the value of the summation:

$$ \sum_{i=1}^{100} \frac{1}{i^2} $$

b- How to use help for MATLAB functions in Command Window?

c- Talk about the functions listed below, illustrate with examples?

"clc – format – home – clear – edit – case – str2num – elseif – return – while ".

3]

Write a Matlab program using Lagrange's interpolation formula to find $f(x)$ from the table of readings:

x	X_1	X_2	X_3	X_4
y	Y_1	Y_2	Y_3	Y_4

4]

Write a Matlab program to fit the equation $y = ax^b$ to the following readings:

x	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
y	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	Y_9	Y_{10}

5]

Write a Matlab program using Gauss-Jordan method to solve a system of N algebraic equations with N unknowns **Ax = b** . Choose the largest (numerically) element in each row or column to be the pivot.

With my best wishes,