

كلية الحاسبات والمعلومات
الفرقة الثالثة
اسم الطالب:

إمتحان العملى
ديسمبر ٢٠١٣

حسابات علمية
الزمن ٤٥ دقيقة

D

Answer the following three questions: (Total Marks 20)

- 1) Write down the necessary MATLAB commands to perform the following:
 - a) (2 marks) Evaluate $|\log_2(0.5)| \sin^{-1}(0.79) / (8e^3 \times 2^5)$.
 - b) (2 marks) Solve the following algebraic equation $x^3 + 5x^2 + 1 = 0$.
 - c) (2 marks) Factor the polynomial $x^{10} - y^{10}$.
- 2) Perform the following using Newton-Raphson Method:
 - a) (3 marks) Write a MATLAB program for approximating the solution of the algebraic equation $xe^x = 2$ for $x_0 = 0.5$ to within 10^{-5} .
 - b) (2 marks) Compute the exact solution using MATLAB.
 - c) (2 marks) Compute the actual error.
- 3) Perform the following using the Composite Simpson's Rule:
 - a) (3 marks) Write a MATLAB program for approximating $\int_0^1 \sqrt{2x^2 + 3x} dx$ using $n = 10$.
 - b) (2 marks) Compute the exact solution using MATLAB.
 - c) (2 marks) Compute the actual error.

Best Wishes