جامعة المنوفيـــــــــة
كلية الهندسة بشبين الكوم
قسم العلوم الاساسية الهندسية
امتحان تمهيدى ماجستير [مستوى -600]

اسم المـــــادة : التحليل العددى(1)
النهاية العظمى : مائة درجة

التاريخ : 10 -8- 2020
الزمن : 3 ساعات

Q1 A) Find a root of the equation $x^3 - x - 11 = 0$ correct to four decimal places using bisection method.

B) Find the root of the function $2(x - \sin x) = 1$ by using fixed point iteration.

C) Find the root of $x^3 - 4x^2 + 2x - 8 = 0$.

D) Use Newton – Raphson method to find the solution of the eqution $(5-x) e^x = 1$

Q2

A) The following data gives I, the indicated power HP and V , the speed in knots developed by ship

V	8	10	12	14	16
I	1000	1900	3250	5000	8950

Find I when V=9 using Newton's Forward interpolation formula.

B) The amount A of a substance remaining in a reaction system after an interval of time t in a certain chemical experiment is tabulated below

T(min)	2	5	8	11
A	94.8	87.9	81.3	75.1

Obtain the value of A where t = 9 using Newton backward interpolation formula.

C) Using Gauss's forward interpolation formula , Find the value of (log375.5) from the following table.

x	310	320	330	340	350	360
$Y_x = \log x$	2.4914	2.5051	2.5185	2.5135	2.5441	2.5563

D) From the following data:

x	1.8	2.0	2.2	2.9	2.6
y	2.9	3.6	4.9	5.5	6.7

Find x when y = 5 using the iterative method.

E) Find the first, second and the 3 rd derivative of f(x|) at x=1.5

x	1.5	2.0	2.5	3.0	3.5	4.0
F(x)	3.375	7.00	13.625	24.000	38.875	59.000

With my best wishes

Dr. osama N. saleh