MATH-373 FINAL EXAM FALL 2015-2016 13/1/2016

NAME SURNAME :..... GROUP NO:.....

STUDENT NO : ..... SIGNATURE:.....

Q-1(30p)	Q-2(30p)	Q-3(30p)	Q-4(30p)	TOTAL(120p)

Q-1) (30p) a) Find the exponential fit $y = Ce^{Ax}$ for the following data

x_k	-1	0	1	2
y_k	13.45	3.01	0.67	0.15

b) Determine the error $E_2(f) =$

Solve

Q-2)(30p) Construct Newton's interpolating polynomial for the function $y = \ln x$ using the tabulated values

x	2	2.2	2.3
y	0.6931	0.7885	0.8329

and obtain an estimation for the error at *x=2.1*.

Q-3) (30p) Compute $\int_0^1 (8x^3 - 3x)dx$ using the Composite Trapezoidal rule with an error bound by 5×10^{-1}, by first finding the ,

a) step size h, and

b) number M.

Solve

Q-4) (30p) a) Use the Euler's method to solve I.V.P.

$$y' = 2ty^2, y(0) = 1$$

in the interval [0,0.3] with step size h=0.1.

b) Compare the result from the exact solution $y = \frac{1}{1-t^2}$.

solve

GOOD LUCK