THE TECHNICAL UNIVERSITY OF KENYA

DEPARTMENT OF CIVIL ENGINEERING

EECQ3101 NUMERICAL METHODS: Class Exercise for 1st March 2016

INSTRUCTIONS: Answer ALL Questions

Q1 (a) The following data give the percentage of criminals for different age groups.

Age (less than x)	25	30	40	50
% of criminals	52	67.3	84.1	94.4

Using Lagrange's formulae, find the percentage of criminals under the age of 35.

(b) Given that f(-1)=-2, f(0)=-1, f(2)=1 and f(3)=4, fit a polynomial of third degree.

(c) Apply Lagrange's formula inversely to obtain the root of f(x) =0 given that f (30) =-30, f (34) =-13, f (38) =3 and f (42) =18.

Q2 (a) Given that f (0) =16.35, f (5) =14.88, f (10) =13.59 and f (15) =12.46, find x when f(x) =14.

(b) Using Lagrange's interpolation formula express the function

$$\frac{x^2+x-3}{x^3-2x^2-x+2}$$

As a sum of partial fractions

(c) Given the following data, find the maximum value of y

x	0	2	3	4	7	9
y	4	26	58	112	466	922
