**…ABDUL MOIZ BIN MEHMOOD ASSIGNMENT # 03 SP14-BPH-032…**

**%Q.3**

clear variables;clear all;close all;clc

% plotting mefuncky for the interval (0,1) we take x1 == 0.5

% x=linspace(0,1,100); y = 15\*x.^4 -30\*x.^2 +5 -6\*x.^5 +10\*x.^3; plot(x,y)

syms mefunky(x) medunky(x)

mefunky(x) = 15\*x^4 -30\*x^2 +5 -6\*x^5 +10\*x^3; % ze fancy symbolic function

medunky(x)=diff(mefunky(x),x); %differentiating the ftn.

x1 = 0.5;

accuracy=10^-9;

x2 = x1 - (mefunky(x1)/medunky(x1));

chakarum = 1;

if mefunky(x1) == 0

x2 = 0;

else

while abs(mefunky(x2)) > accuracy %la loopa loop

x1 = x2;

x2 = x1 - (mefunky(x1)/medunky(x1));

chakarum = chakarum +1;

end

end

%le me giving answer

fprintf('The root is found to be at, x = %.4f & y = %.4f after %i iteration(s), where accuracy = %.2e \n',x2,mefunky(x2),chakarum,accuracy)

**%Q.5**

clear variables;clear all;close all;clc

% plotting mefuncky we see that a root near -0.5 lies b/w 0 and -2.

mefunky = @(x) exp(x) - 3\*x.^2 ; % ze function

x1 = 0;

x2 = -2;

x3 = x2 - ((x1-x2)/(mefunky(x1)-mefunky(x2)))\*mefunky(x2);

chakarum = 1;

if abs(mefunky(x2)- mefunky(x1)) <= 10^-6 %chk for overflow

error ('Fatal Error, The world will end now because of your stupidity!')

else

while abs(mefunky(x3)) > 10^-6 %la loopa loop

x3 = x2 - ((x1-x2)/(mefunky(x1)-mefunky(x2)))\*mefunky(x2);

chakarum= chakarum +1;

x1=x2;

x2=x3;

end

end

%le me giving answer

result = ['The root is found to be at, x = ',num2str(x3),...

' & y = ',num2str(mefunky(x3)),' after, n= ',num2str(chakarum),' iteration(s)'];

disp(result)