**Assignment 2**

**Pseudo Code** :-

**Gradient (coeffp, m, iterations, point)**

convert 1D coeff array to 3D coeff array

for iter=1 to iterations

for x1=0 to m

for x2=0 to m

for x3=0 to m

if(x1 > 1)

grad\_coeff[x1-2][x2][x3] += coeffp[x1][x2][x3]\*x1\*x1-1

if(x2 > 1)

grad\_coeff[x1][x2-2][x3] += coeffp[x1][x2][x3]\*x2\*x2-1

if(x3 > 1)

grad\_coeff[x1][x2][x3-2] += coeffp[x1][x2][x3]\*x3\*x3-1

end for

end for

end for

end for

for x1=0 to m

for x2=0 to m

for x3=0 to m

grad\_value += grad\_coeff[x1][x2][x3] \* x[0]^x1 \* x[1]^x2 \* x[2]^x3

end for

end for

end for

return grad\_value

end function

**Compute-Q (m, coeffp, point)**

q\_x = 0

for k = 0 to m/2

q(x) += ((-1)k |x|2k Gradient(coeffp, m, k, point))/((2,2)k+1 \* (n+2m-2k)k+1)

end for

**Initial call** :-  **Compute-Q(m, coeffp, point)**