Anyanmohammed Aliyu mohammed

16/ENG04/009

Elec/elect

Engr mathematics   Engr mathematics

Assignment 4

$10m_1 - 2m_2 + m_3 = 9$

$-2m_1 + 10m_2 - 2m_3 = 12$

$-2m_1 - 5m_2 + 10m_3 = 18$

$$m_0 \begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$$

from eqn 1

$10m_1 - 2m_2 + m_3 = 9$

$M_1 = \dfrac{9 + 2m_2 - m_3}{10} = 0.9 + 0.2m_2 - 0.1m_3$

from eqn 2

$-2m_1 + 10m_2 - 2m_3 = 12$

$M_2 = \dfrac{12 + 2m_1 + 2m_3}{10} = 1.2 + 0.2m_1 + 0.2m_3$

from eqn 3

$-2m_1 - 5m_2 + 10m_3 = 18$

$m_3 = \dfrac{18 + 2m_1 + 5m_2}{10} = 1.8 + 0.2m_1 + 0.5m_2$

$m_1 = 0 \; ; \; m_2 = 0 , \; m_3 = 0$

$M_1 = 0.9 + 0.2(0) - (0.1)0 = 0.9$

$m_2 = 1.2 + 0.2(0) + 0.2(0) = 1.2$

$m_3 = 1.8 + 0.2(0) + 0.5(0) = 1.8$

$m_1^2 = 0.9 + 0.2(1.2) - 0.1(1.8) = 0.96$

$m_2^2 = 1.2 + 0.2(0.9) + 0.2(1.8) = 1.74$

$m_3^2 = 1.8 + 0.2(0.9) + 0.5(1.2) = 2.58$

$m_1 = 0.96; \quad m_2 = 1.74 \quad m_3 = 2.58$

$h_1{}^3 = 0.9 + 0.2(1.74) - 0.1(2.58) = 0.99$

$h_2{}^3 = 1.2 + 0.2(0.96) + 0.2(2.58) = 1.908$

$m_3{}^3 = 1.8 + 0.2(0.96) + 0.5(1.74) = 2.862$

$w_1 = 0.99, \quad m_2 = 1.908 \quad ; \quad m_3 = 2.862$

$h_1{}^4 = 0.9 + 0.2(1.908) - 0.1(2.862) = 0.9954$

$m_2{}^4 = 1.2 + 0.2(0.99 + 0.2(2.862)) = 1.9704$

$w_3{}^4 = 1.8 + 0.2(0.99) + 0.2(1.908) = 2.3796$

$m_1 = 0.9954; \quad m_2 = 1.9704 \quad m_3 = 2.3796$

$w_1{}^5 = 0.9 + 0.2(1.9704) - 0.1(2.3796) = 1.05612$

$w_2{}^5 = 1.2 + 0.2(0.9954) + 0.2(2.3796) = 1.875$

$m_3{}^5 = 1.5 + 0.2(1.05612) + 0.5(1.875) = 2.94872$

~~$h_1 = 0.1101 \quad m_2 = 2.0081 \quad m_3$~~

$m_1{}^6 = 1.05612 \quad m_2 = 1.825 \quad m_3 = 2.98424$

$m_1{}^6 = 0.9 + 0.2(1.875) - 0.1(2.98428) = 0.976572$

$m_2{}^6 = 1.2 + 0.2(1.05612) + 0.2(2.98428) = 2.0081$

$m_3{}^6 = 1.8 + 0.2(1.05612) + 0.5(1.875) = 2.9487$

$h_1 = 0.976572, \quad m_2 = 2.0081 \quad m_3 = 2.9487$

$w_1{}^7 = 0.9 + 0.2(2.0081) - 0.1(2.9487) = 1.006742$

$w_2{}^7 = 1.2 + 0.2(0.976572) + 0.2(2.9487) = 1.9850584$

$m_3{}^7 = 1.8 + 0.2(0.976572) + 0.5(2.0081) = 2.999364$

$m_1 = 1.006748; \quad m_2 = 1.9850584 \quad m_3 = 2.999364$

$h_1{}^8 = 0.9 + 0.2(1.9850584) - 0.1(2.999364) = 0.9992075$

$h_2{}^8 = 1.2 + 0.2(1.006749) + 0.2(2.999364) = 2.0012224$

$m_3{}^8 = 1.8 + 0.2(1.006748) + 0.5(1.9850584) = 2.9938781$