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16/ENGR04/050
Elect/Elect

Assignment IV

$$\begin{aligned} 10m_1 - 2m_2 + m_3 &= 9 & \text{--- (i)} \\ -2m_1 + 10m_2 - 2m_3 &= 12 & \text{--- (ii)} \\ -2m_1 - 5m_2 + 10m_3 &= 18 & \text{--- (iii)} \end{aligned}$$

$m_0[000]$

from eqn (i)

$$10m_1 - 2m_2 + m_3 = 9$$

$$m_1 = \frac{9 + 2m_2 - m_3}{10} = 0.9 + 0.2m_2 - 0.1m_3$$

from eqn (ii)

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

$$m_2 = \frac{12 + 2m_1 + 2m_3}{10} = 1.2 + 0.2m_1 + 0.2m_3$$

from eqn (iii)

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

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

$$m_1 = 0, m_2 = 0, m_3 = 0$$

$$m_1 = 0.9 + 0.2(0) - 0.1(0) = 0.9$$

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

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

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

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

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

$$m_1 = 0.96, m_2 = 1.74, m_3 = 2.58$$

$$m_1^2 = 0.9 + 0.2(1.74) - 0.1(2.58) = 0.99$$

$$m_2^2 = 1.2 + 0.2(0.96) + 0.2(2.54) = 1.908$$

$$m_3^2 = 1.8 + 0.2(0.96) + 0.5(1.74) = 2.862$$

$$m_1 = 0.99, m_2 = 1.908, m_3 = 2.862$$

$$m_1^3 = 0.9 + 0.2(1.908) - 0.1(2.862) = 0.9954$$

$$m_2^3 = 1.2 + 0.2(0.99 + 0.2(2.862)) = 1.9704$$

$$m_3^3 = 1.8 + 0.2(0.99) + 0.5(1.908) = 2.3796$$

$$m_1 = 0.9954, m_2 = 1.9704, m_3 = 2.3796$$

$$m_1^4 = 0.9 + 0.2(1.9704) - 0.1(2.3796) = 1.05612$$

$$m_2^4 = 1.2 + 0.2(0.9954) + 0.2(2.3796) = 1.875$$

$$m_3^4 = 1.8 + 0.2(1.05612) + 0.5(1.875) = 2.94872$$

$$m_1 = 1.05612, m_2 = 1.875, m_3 = 2.94872$$

$$m_1^5 = 0.9 + 0.2(1.875) - 0.1(2.94872) = 0.976572$$

$$m_2^5 = 1.2 + 0.2(1.05612) + 0.2(2.94872) = 2.0081$$

$$m_3^5 = 1.8 + 0.2(1.05612) + 0.5(1.875) = 2.94872$$

$$m_1 = 0.976572, m_2 = 2.0081, m_3 = 2.94872$$

$$m_1^6 = 0.9 + 0.2(2.0081) - 0.1(2.94872) = 1.006748$$

$$m_2^6 = 1.2 + 0.2(0.976572) + 0.2(2.94872) = 1.9850584$$

$$m_3^6 = 1.8 + 0.2(0.976572) + 0.5(2.0081) = 2.999364$$

$$m_1 = 1.006748, m_2 = 1.9850584, m_3 = 2.999364$$

$$m_1^7 = 0.9 + 0.2(1.9850584) + 0.1(2.999364) = 0.992075$$

$$m_2^7 = 1.2 + 0.2(1.006748) + 0.2(2.999364) = 2.0012124$$

$$m_3^7 = 1.8 + 0.2(1.006748) + 0.2(1.9850584) = 2.9938788$$