

DEPARTMENT OF ELECTRICAL ENGINEERING
 SRMIST
 13/05/2019
 1002

$$S_A + S_B = 1 \quad \text{if } 100 = 100 + \frac{100}{10} + \frac{100}{10}$$

$$S_A + S\left(\frac{1}{10}\right) = 1$$

$$S_A + Y_2 = 1 \quad 0 = 100 + \frac{100}{10} + \frac{100}{10}$$

$$S_A = 1 - Y_2$$

$$10A = 1$$

$$0 = 1 + 10e^{-3t} - 10 = 9$$

$$A = \frac{1}{10}$$

$$0 = 1 + 10e^{-3t} + 10e^{-2t} - 10 = 9$$

$$P.F = Y_{10} \cos t + Y_{10} \sin t$$

$$P.F = Y_{10} (\cos t + \sin t)$$

$$OC = C.F + P.F$$

$$OC = Ae^{-3t} + Be^{-2t} + Y_{10} (\cos t + \sin t)$$

$$OC = \left(\frac{1}{10}\right)e^{-3t} + \left(\frac{1}{10}\right)e^{-2t} + \frac{1}{10} (\cos t + \sin t)$$

$$100 = (27) \cdot 10$$

$$100 = 270 + 100A = 20$$

$$100 = 270 + 100A = 20$$

$$100 = 270 + 100A = 20$$

ABDULMALIK - KAYODE
 17ENR04/078
 Electrical electronics
 ENR 381
 3001

$$1. \frac{d^2x}{dt^2} + 5\frac{dx}{dt} + 6x = \cos t \quad 1 = 8^2 + 4^2$$

$$\frac{d^2x}{dt^2} + 5\frac{dx}{dt} + 6x = 0 \quad 1 = 5^2 + 4^2$$

$$C.I.F = M^2 + 5M + 6 = 0 \quad 1 = 401$$

$$M^2 + 3M + 2M + 6 = 0 \quad 0 \cdot 1 = A$$

$$M(M+3) + 2(M+3) = 0 \quad 0 \cdot 1 + 2 \cdot 0 \cdot 1 = 9 \cdot 9$$

$$(M+3)(M+2) = 0 \quad (9 \cdot 9 + 2 \cdot 0 \cdot 1) \cdot 1 = 9 \cdot 9$$

$$M = -3 \text{ and } M = -2 \quad 9 \cdot 9 + 9 \cdot 9 = 20$$

$$x = A e^{m_1 t} + B e^{m_2 t} = A e^{-3t} + B e^{-2t}$$

$$x = A e^{-3t} + B e^{-2t} = C.I.F + (P.I) = 20$$

P. f. $F(x) = \cos t$

$$x = A \cos t + B \sin t$$

$$\frac{dx}{dt} = -A \sin t + B \cos t$$

$$\frac{d^2x}{dt^2} + 5\frac{dx}{dt} + 6x = \cos t$$

$$(-A \cos t - B \sin t) + (-5A \sin t + 5B \cos t) + (6A \cos t + 6B \sin t) =$$

$$5A \cos t + 5B \sin t - 5A \sin t + 5B \cos t$$

collecting like terms

$$\begin{aligned} 5A + 5B &= 1 \\ -5A + 5B &= 0 \\ 10B &= 1 \\ B &= 1/10 \end{aligned}$$

x =

$$\exp(-3*t)/10 - \exp(-2*t) + \cos(t) + \sin(t)$$

tn =

0
0.0100
15.0000

xn =

$$\begin{array}{l} \cos(1/100) - \exp(-1/50) + \exp(-3/100)/10 + \sin(1/100) \\ \cos(15) - \exp(-30) + \exp(-45)/10 + \sin(15) \end{array}$$

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COPMMANDS
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commandwindow  
clear  
clc  
close all  
syms t  
x = 0.1*(exp(-3*t))-exp(-2*t)+cos(t)+sin(t)  
tn = [0;0.01;15]  
xn = subs(x,tn)  
figure (1)  
plot(tn,xn)  
grid on  
grid minor  
axis tight  
xlabel ('t')  
ylabel ('x')
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