ELUWA TOCHUKWU DIVINE

17/ENG07/010

PETROLEUM ENGINEERING

ENG281 ASSIGNMENT 3

v(t) =

110\*cos(120\*pi\*t)

dv(t) =

-13200\*pi\*sin(120\*pi\*t)

c =

1.0000e-04

i(t) =

-(33\*pi\*sin(120\*pi\*t))/25

t =

Columns 1 through 12

0 0.0100 0.0200 0.0300 0.0400 0.0500 0.0600 0.0700 0.0800 0.0900 0.1000 0.1100

Columns 13 through 24

0.1200 0.1300 0.1400 0.1500 0.1600 0.1700 0.1800 0.1900 0.2000 0.2100 0.2200 0.2300

Columns 25 through 36

0.2400 0.2500 0.2600 0.2700 0.2800 0.2900 0.3000 0.3100 0.3200 0.3300 0.3400 0.3500

vn(t) =

[ 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110]

vnn =

Columns 1 through 12

110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919

Columns 13 through 24

33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919

Columns 25 through 36

-88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000

in(t) =

[ 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0, (33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, -(33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, (33\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2))/100, -(33\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2))/100, 0]

inn =

Columns 1 through 12

0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375

Columns 13 through 24

-3.9439 3.9439 -2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375 -3.9439 3.9439

Columns 25 through 36

-2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0

p(t) =

-(726\*pi\*cos(120\*pi\*t)\*sin(120\*pi\*t))/5

pn(t) =

[ 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, -(363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 - 1/4)\*(5^(1/2) + 5)^(1/2))/10, (363\*2^(1/2)\*pi\*(5^(1/2)/4 + 1/4)\*(5 - 5^(1/2))^(1/2))/10, 0]

pnn =

Columns 1 through 12

0 -216.9166 -134.0618 134.0618 216.9166 0 -216.9166 -134.0618 134.0618 216.9166 0 -216.9166

Columns 13 through 24

-134.0618 134.0618 216.9166 0 -216.9166 -134.0618 134.0618 216.9166 0 -216.9166 -134.0618 134.0618

Columns 25 through 36

216.9166 0 -216.9166 -134.0618 134.0618 216.9166 0 -216.9166 -134.0618 134.0618 216.9166 0

plot(t,vnn,'b')

hold on

plot(t,inn,'r')

hold on

plot(t,pnn,'k')

xlabel('Time(sec)')

ylabel('Variables')

legend('Voltage(V)','Current(A)','Power(P)')

grid on

grid minor