**NAME: CHINEDUM PRUDENCE ESE**

**MATRIC NUMBER: 17/ENG01/007**

**DEPARTMENT: CHEMICAL ENGINEERING**

**ENG 281 ASSIGNMENT 3**

1. commandwindow

2. clear

3. clc

4. close all

5. syms t

6. v(t)=110\*cos(120\*pi\*t)

7. i=diff(v)

8. p=diff(i)

9. t=0:0.01:0.35

10. vn=subs(v)

11. vnn=double(vn)

12. in=subs(i)

13. inn=double(in)

14. pn=subs(p)

15. pnn=double(pn)

16. plot(t,vnn)

17. hold on

18. plot(t,inn)

19. hold on

20. plot(t,pnn)

21. xlabel(‘time(secs)’)

22. ylabel(‘variable’)zx

23. legend ('voltage(v)','çurrent(i)', 'power(w)')

24. grid on

25. grid minor

v(t) =

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

i(t) =

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

p(t) =

-1584000\*pi^2\*cos(120\*pi\*t)

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, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0]

inn =

 1.0e+04 \*

 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

pn(t) =

[ -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2]

pnn =

 1.0e+07 \*

 Columns 1 through 12

 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648

 Columns 13 through 24

 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831

 Columns 25 through 36

 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633

