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DEPT : CIVIL ENGINEERING
MATRIC NO : 16/ENG03/026

QUESTION 4

a.

```
commandwindow  
  
clear  
  
clc  
  
close all  
  
MM = [0 10 4 -2; -3 -17 1 2; 1 1 1 0; 8 -34 16 -10];  
  
G = [-4 2 6 4 ];  
  
F = det(MM);  
  
L = transpose(MM);  
  
D = Z^(-1);  
  
A = G*D;  
  
A =  
  
    1.5000    1.7143    4.0000   -0.3571
```

b.

```
Commandwindow  
  
clear  
  
clc  
  
close all  
  
syms t  
  
d = 1.5*exp(-0.75*t)*sin(0.85*t)+(0.375*t)  
  
t = [0:0.01:2.5];  
  
V = diff(d);  
  
VD = subs(V,t)  
  
A = diff(V);
```

```

AD = subs(A,t);
figure(1)
plot(t,VD,t,AD)
axis tight
grid on
grid minor
xlabel('Time')
ylabel('Variables')
legend('Velocity (km/h)', 'acceleration (km/h^2)')

```

C.

```

commandwindow
clear
clc
close all
syms x
y = 5 * (sin (5 *x))^5;
VX = 3.142 * (5 * (sin (5 *x))^5)^2;
VXint = int(V,0,3.142);
VXint =
(4713*sin(1571/25))/5120 - (1571*sin(1571/10))/512000 -
(32991*sin(1571/50))/10240 + (1571*sin(3142/25))/40960 -
(4713*sin(4713/50))/20480 + 155486583/2560000

```