

**NAME : DEMBO ABDULQUDDUS**  
**DEPT : CIVIL ENGINEERING**  
**MATRIC NO : 16/ENG03/019**

## **QUESTION 4**

a.

```
commandwindow
```

```
clear
```

```
clc
```

```
close all
```

```
A = [0 10 4 -2; -3 -17 1 2; 1 1 1 0; 8 -34 16 -10];
```

```
B = [-4 2 6 4 ];
```

```
C = det(A);
```

```
J = transpose(A);
```

```
D = A^(-1);
```

```
CC = B*D;
```

```
CC =
```

```
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];
```

```
H = diff(d);
```

```
V = subs(H,t)
```

```
K = diff(H);
```

```

A = subs(K,t);
figure(1)
plot(t,V,t,A)
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;
Vy = 3.142 * (5 * (sin (5 *x))^5)^2;
Vy = int(V,0,3.142);
Vy =
(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

```