

DEPT: CHEMICAL ENGINEERING

COURSE CODE: ENG 382

COURSE TITLE: ENGINEERING MATHEMATICS IV

**ASSIGNMENT FOUR SOLUTION**

**FUNCTION COMMAND**

```
function dqdt = ememnnn(t,q)
```

```
dqdt(1)= (-0.03*q(1))+0.005*q(2))+1;
```

```
dqdt(2)= (0.03*q(1))-(0.018*q(2))+0.0075*q(3));
```

```
dqdt(3)= (0.013*q(2))-(0.0325*q(3));
```

```
dqdt=dqdt';
```

```
end
```

**SIMULATION**

```
commandwindow
```

```
clearvars
```

```
clc
```

```
close all
```

```
[t,q]= ode45('ememnnn',[0: 45: 1200],[0 0 0]);
```

```
figure(1);
```

```
subplot(3,1,1)
```

```
plot(t,q(:,1),'o-g')
```

```
xlabel('Time (min)')
```

```
ylabel('Volume(Litre)')
```

```
legend('Tank 1')
```

```
grid on
```

```
grid minor
```

```
axis tight
```

```
subplot(3,1,2)
plot(t,q(:,2),'*-b')
xlabel('Time (min)')
ylabel('Volume(Litre)')
legend('Tank 2')
grid on
grid minor
axis tight
```

```
subplot(3,1,3)
plot(t,q(:,1),'+-r')
xlabel('Time (min)')
ylabel('Volume(litre)')
legend('Tank 2')
grid on
grid minor
axis tight
```

