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Mechanical Engineering

Answer

Function file

```
function dydt = Umohfun(t, y)
dydt(1) = (-15/500 * y(1)) + (5/1000 * y(2)) + 1;
dydt(2) = (15/500 * y(1)) - (18/1000 * y(2)) + (3/400 * y(3));
dydt(3) = (13/1000 * y(2)) - (13/400 * y(3));
dydt = dydt';
```

Simulation file

Command window

clear

close all

```
[t, y] = Ode45('umohfun', [0:45:1200], [0 0 0]);
```

Figure (1)

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

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

```
xlabel('Time (ms)')
```

```
ylabel('Volume (litre)')
```

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

```
grid on
```

```
subplot(3, 1, 2)
```

```
plot(t, y(:, 2), 'r-b')
```

```
xlabel('Time (ms)')
```

```
ylabel('Volume (litre)')
```

```
legend('Tank 2')
```

```
grid on
```

```
subplot(3,1,3)
plot(t, y(:,1), 'r')
xlabel('Time (ms)')
ylabel('Volume (Litre)')
legend('Tank3')
grid on
```