

AKUMA SUNNY .U.

13th April, 2020

17/ENG04/009

ELECTRICAL/ELECTRONICS

ENG 382

ENGINEERING MATHEMATICS

ASSIGNMENT II

ANSWERS

Function Command

```
function dmdt = Akuma (t, m)
```

```
dmdt (1) = (-0.03 * m(1)) + (0.005 * m(2)) + 1;
```

```
dmdt (2) = (0.03 * m(1)) - (0.018 * m(2)) + (0.075 * m(3));
```

```
dmdt (3) = (0.013 * m(2)) - (0.0325 * m(3));
```

```
dmdt = dmdt';
```

```
end
```

Simulation file

Command window

```
clear all
```

```
clc
```

```
close all
```

```
width = (0:1:1200);
```

```
initial = [0 0 0];
```

```
(t, Q) = ode45 (@Akuma, width, initial);
```

Figure(1)

subplot (3,1,1)

plot (t, Q(:,1), 'go-')

x label ('Time (min)')

y label ('Volume (litre)')

legend ('Tank 1', 'Location', 'South')

grid on

grid minor

axis tight

title ('figure 1: Dynamic Responses of the Tanks')

subplot (3,1,2)

plot (t, Q(:,2), 'b*-')

x label ('Time (min)')

y label ('Volume (litre)')

legend ('Tank 2', 'Location', 'South')

grid on

grid minor

axis tight

subplot (3,1,3)

plot (t, Q(:,3), 'r+--')

x label ('Time (min)')

ylabel('volume (litre)')
legend('Tank 3', 'location', 'south')
grid on
grid minor
axis tight

Figure 1: Dynamic Responses of the Tanks

