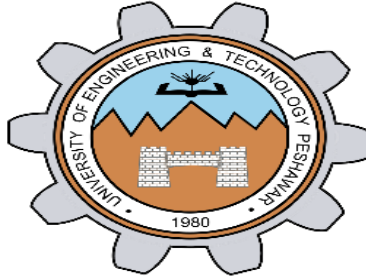


Lab report no 5



Fall 2022

Control System Lab

Submitted By

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Section: A

Date: 09,11,22

Submitted to: Dr Muniba Ashfaq

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Objectives: -

- To understand differentiation of the system.
- To learn how to find differentiation with initial condition.

Task no 1: -

Code: -

```
function dy = func1(t,y)
```

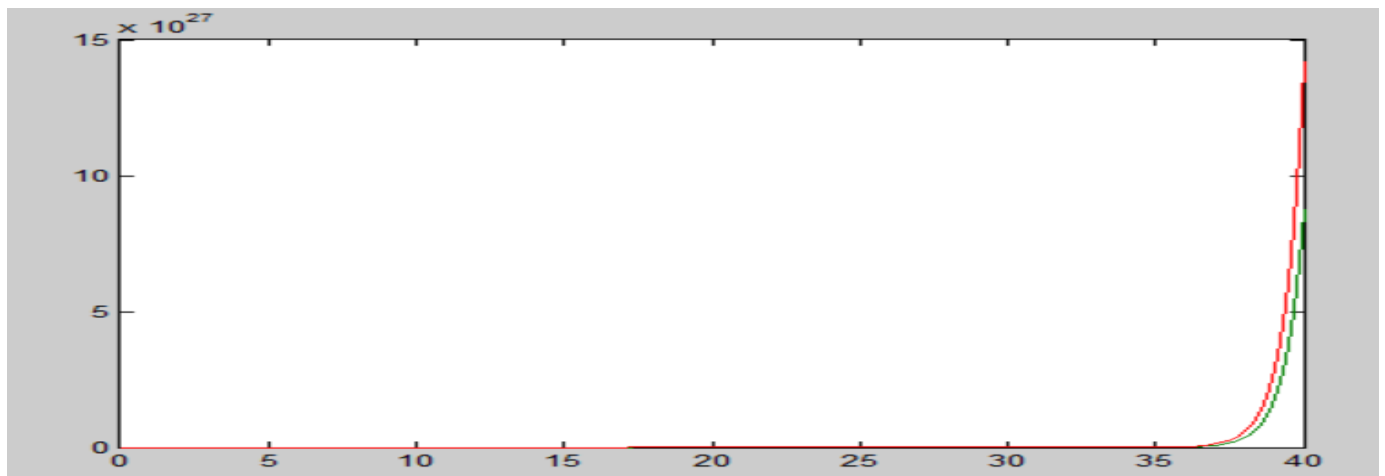
```
dy = zeros(4,1);  
dy(1) = y(1)+y(2);  
dy(2) = y(3);  
dy(3) = y(2)+y(3);
```

```
end
```

Calling file: -

```
[t y] = ode23('func1', [0 40],[2 1 1]);  
plot(t,y)
```

Plot: -



Task no 2: -

Code: -

```
function dy = func1(t,y)

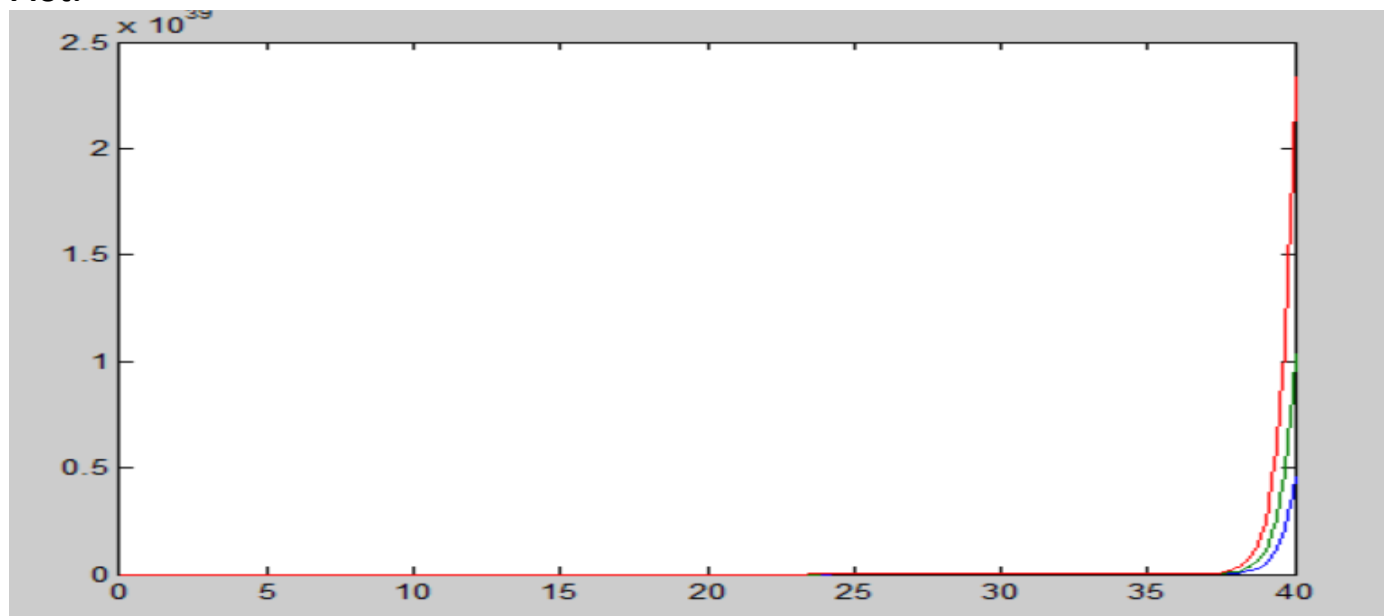
dy = zeros(2,1);
dy(1) = y(2);
dy(2) = y(3);
dy(3) = y(2)+2*y(3)-y(1)+2;

end
```

Calling file: -

```
[t y] = ode23('func1', [0 40],[0 2 1]);
plot(t,y)
```

Plot: -



Task no 3: -

Code: -

m file(named func1): -

```
function dy = func1(t,y)

dy = zeros(4,1);
dy(1) = y(2);
dy(2) = y(3);
dy(3) = y(4);
dy(4) = y(5);
dy(5) = -2*y(5)-24*y(4)-48*y(3)-24*y(2)-20*y(1)-10;

end
```

Calling file: -

```
[t y] = ode23('func1', [0 40],[2 5 10 -4 -7]);
plot(t,y)
```

Plot: -

