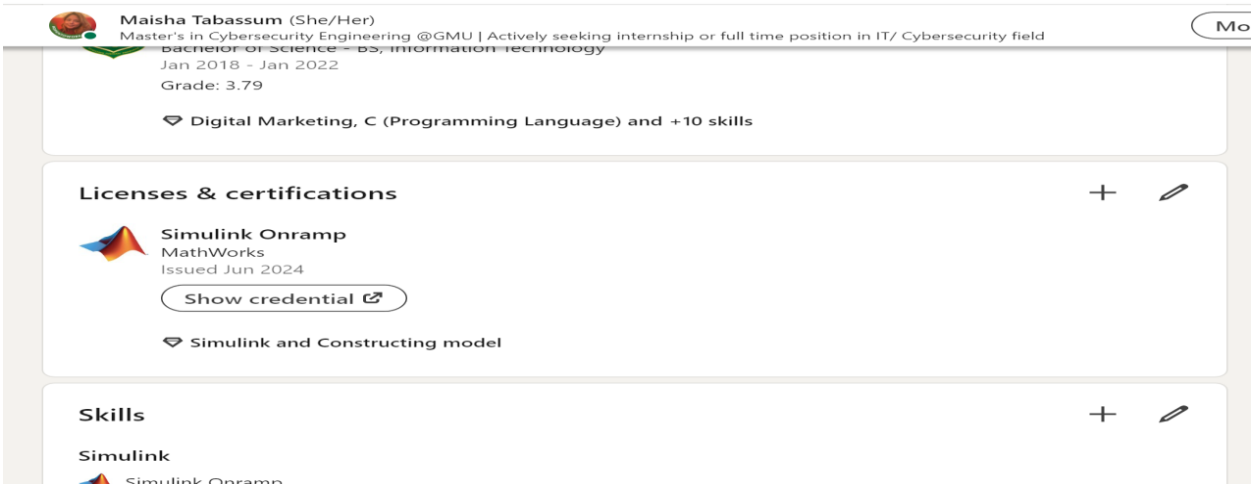
Part 1:

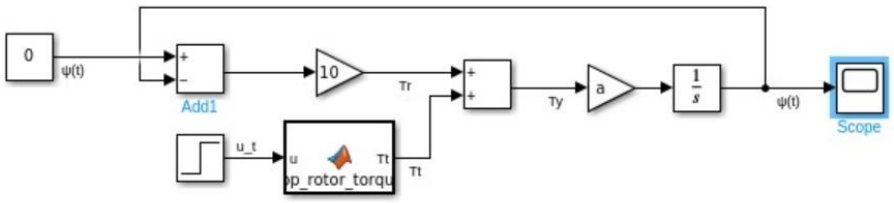
https://matlabacademy.mathworks.com/progress/share/report.html?id=5ca4951c-4579-4df2-9df3-2ccf5acfe762&

Extra bonus:

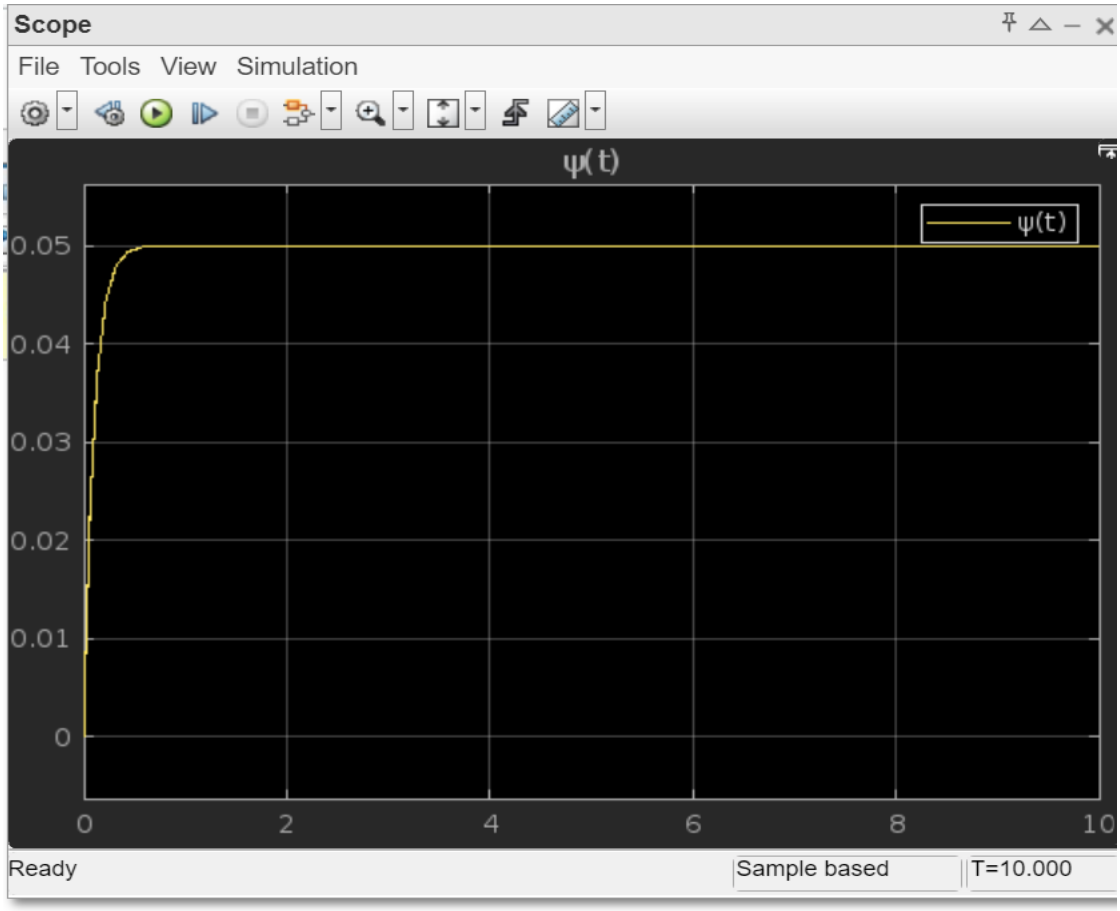


Part 2:

1. For K=10



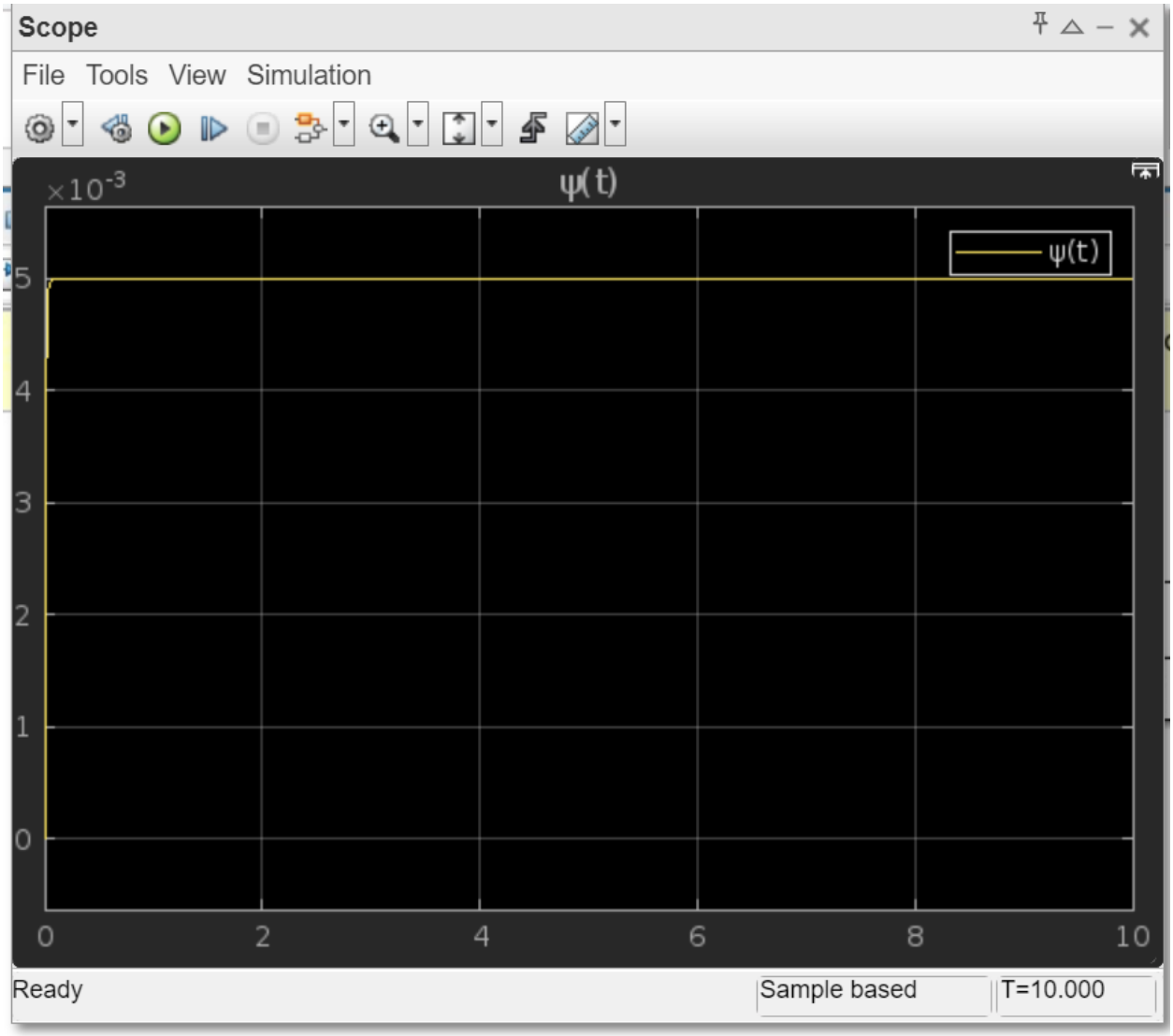
The output is:



2.

For K= 100

The output is:



Due to increasing K value, there is a rapid initial change in angular velocity. For K =10, there is small increase upto 0.05 and after that it was constant. But for K=100, the rapid velocity change occurs upto 5 and after that it was constant.

3.

Attacker could exploit K to make the helicopter unstable by increasing K to a high value.

The controller gain K controls how strongly the system reacts to differences between the desired angular velocity (which is zero) and the actual angular velocity. The effect can be-

- If K is too high, the system reacts too strongly to small differences, causing high-frequency oscillations or even instability.

- With a high gain, the system might oscillate wildly instead of stabilizing, making it unstable.