

2.b)

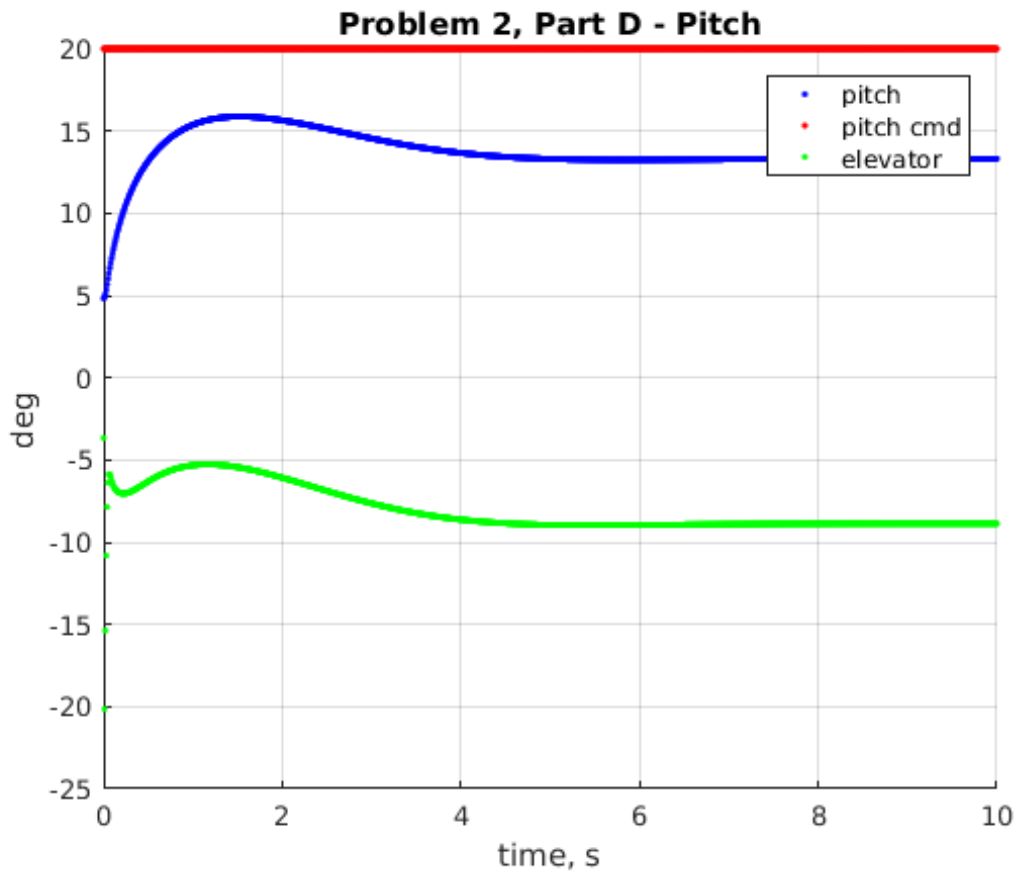
```
e_theta_max = 30*pi/180;  
zeta_pitch = 0.9;
```

```
P.pitch_kp = P.delta_e_max/e_theta_max*sign(models.a_theta3);  
P.pitch_ki = 0.0;  
omega_n_theta = sqrt(models.a_theta2 + P.pitch_kp*models.a_theta3);  
P.pitch_kd = (2*zeta_pitch*omega_n_theta - models.a_theta1)/models.a_theta3;  
P.K_theta_DC = P.pitch_kp*models.a_theta3/(models.a_theta2 +  
P.pitch_kp*models.a_theta3);
```

2.c)

```
kp =  
-1.5000  
ki =  
0  
kd =  
-0.2120  
k_dc =  
0.6637
```

2.d)



2.e)  $ss\_pitch = 20 * P.K\_theta\_DC$

```
ss_pitch =  
    13.2743 (This is about where the blue line above levels  
off to)
```