Roll Number: 190070049

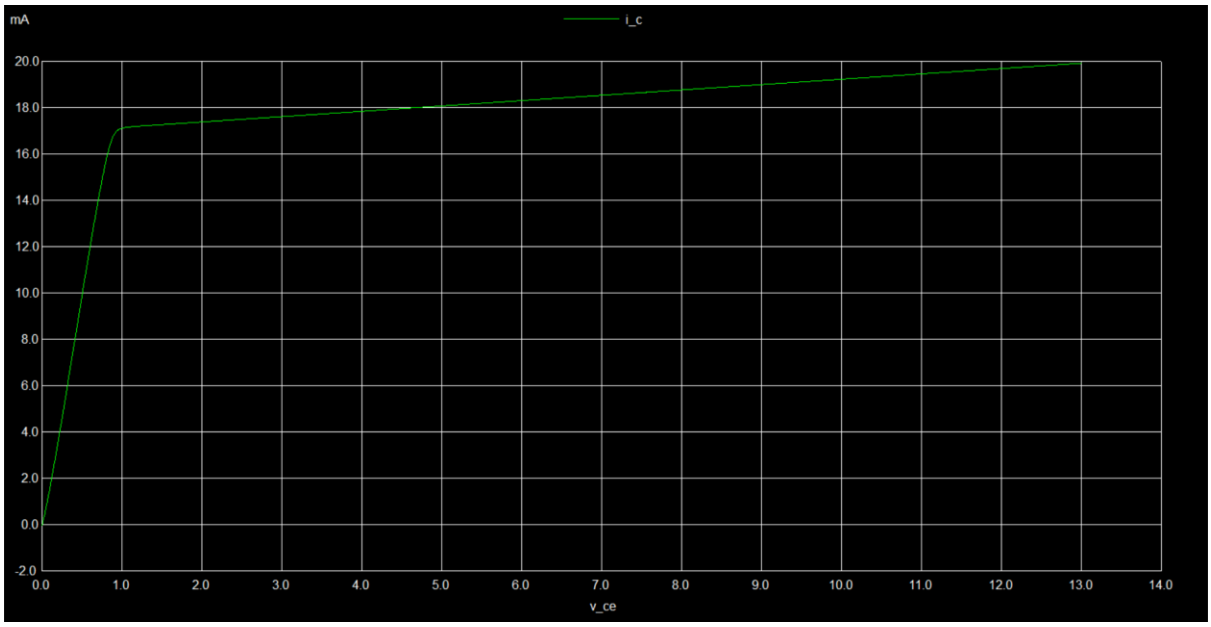
Name: Rathour Param Jitendrakumar

Course: Electronic Devices Lab

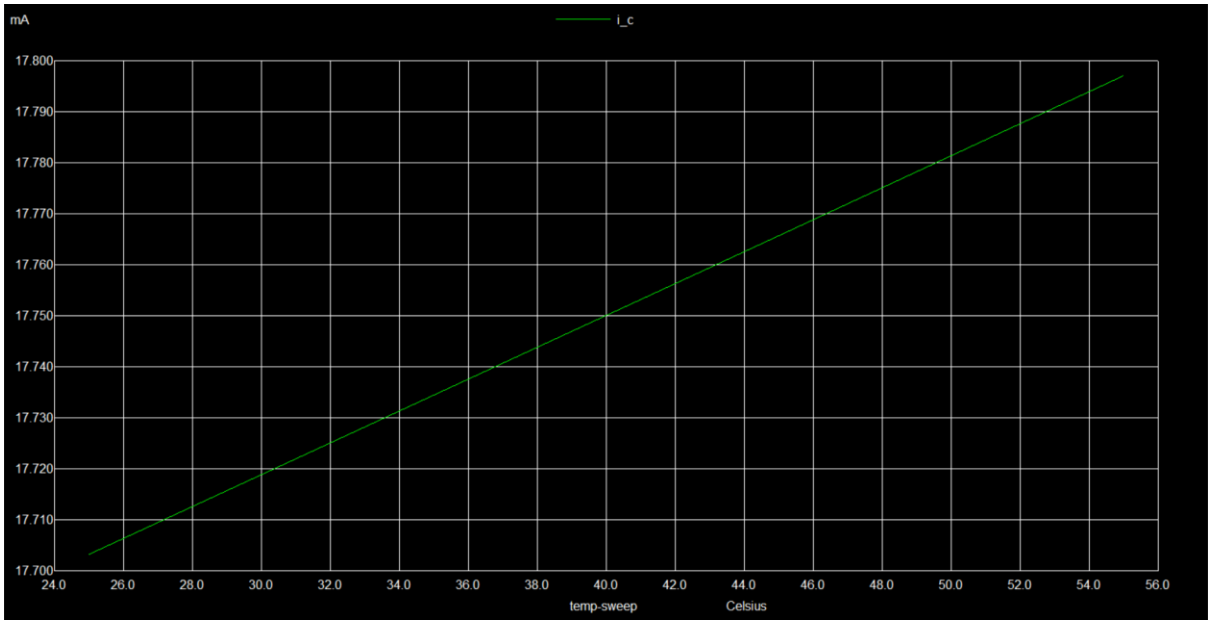
Course Code: EE236

Q1) a)

I_C vs V_CE

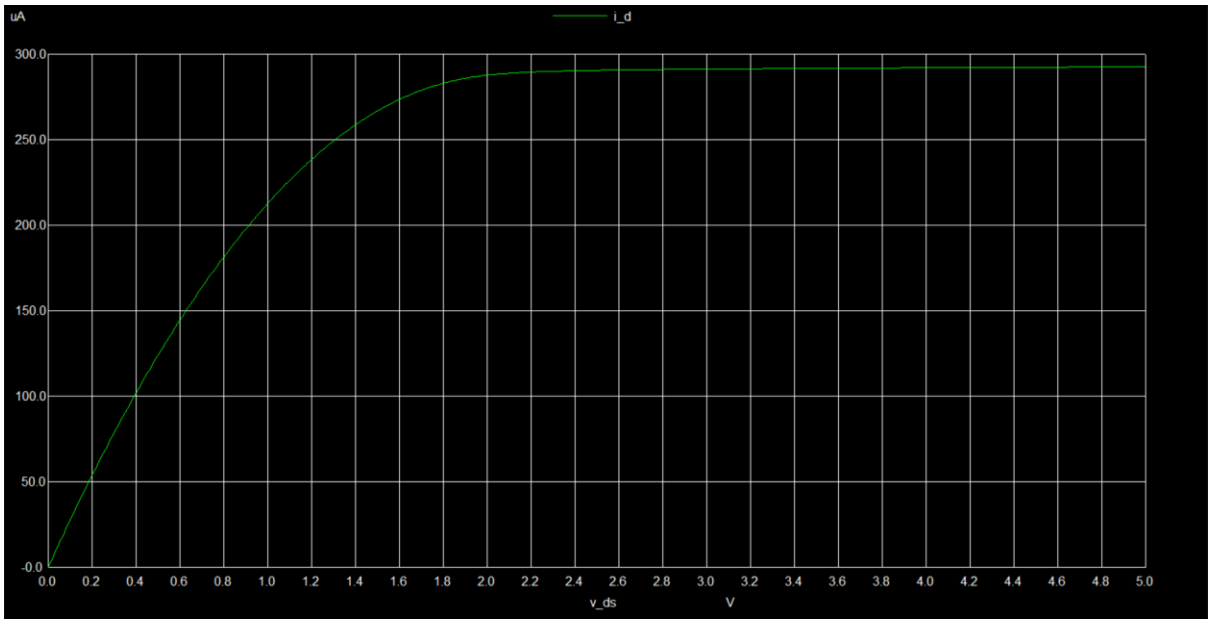


I_C vs temp

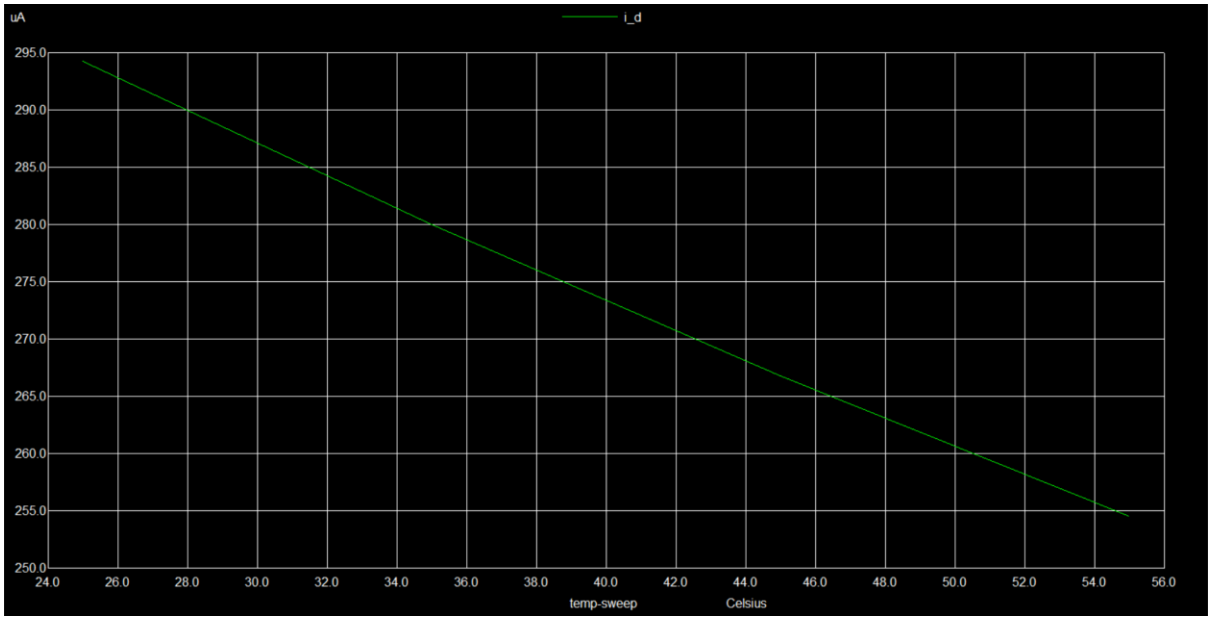


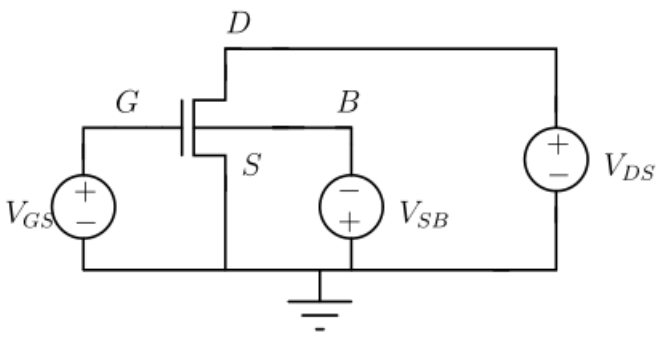
Q1) b)

I_D vs V_DS



I_D vs temp

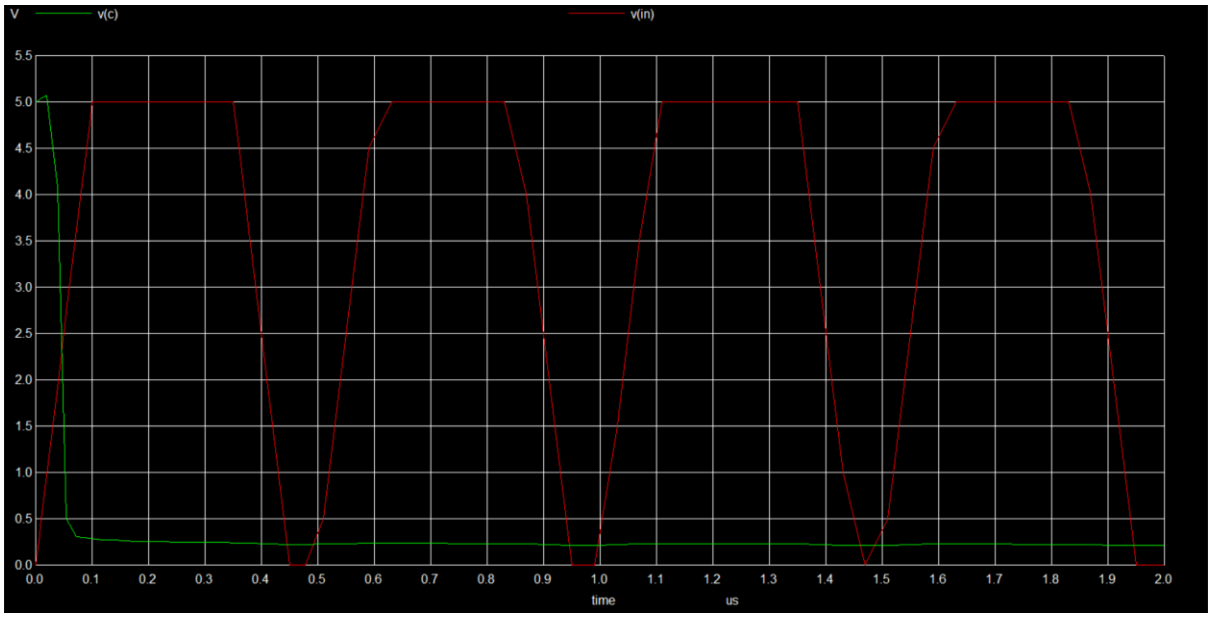




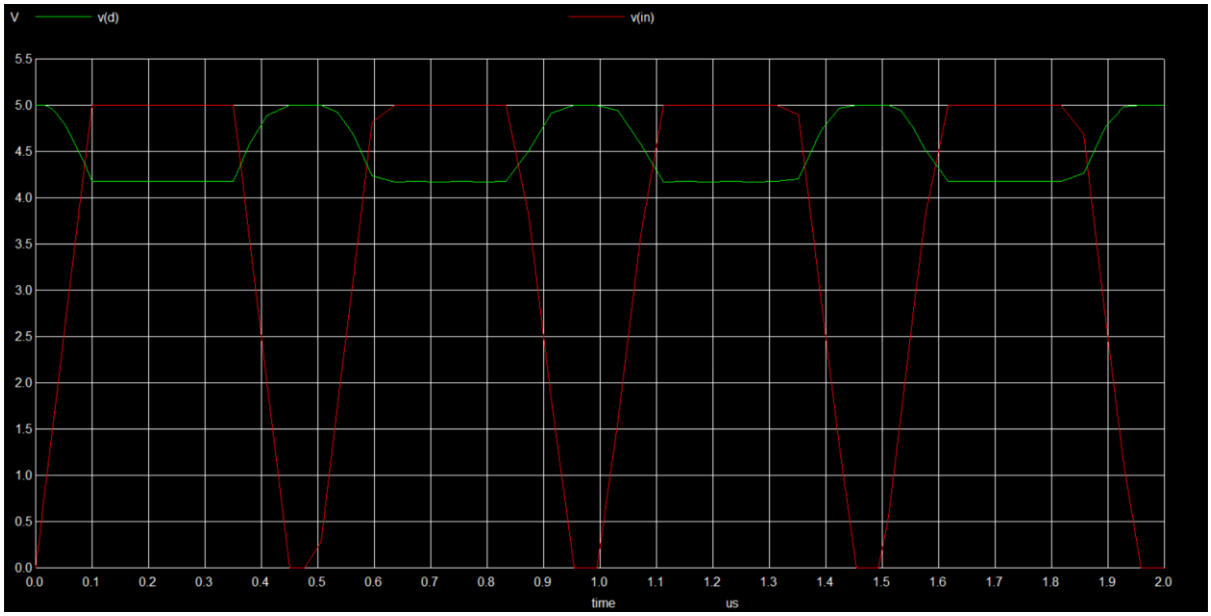
Q1) c)

V_out vs V_in

BJT

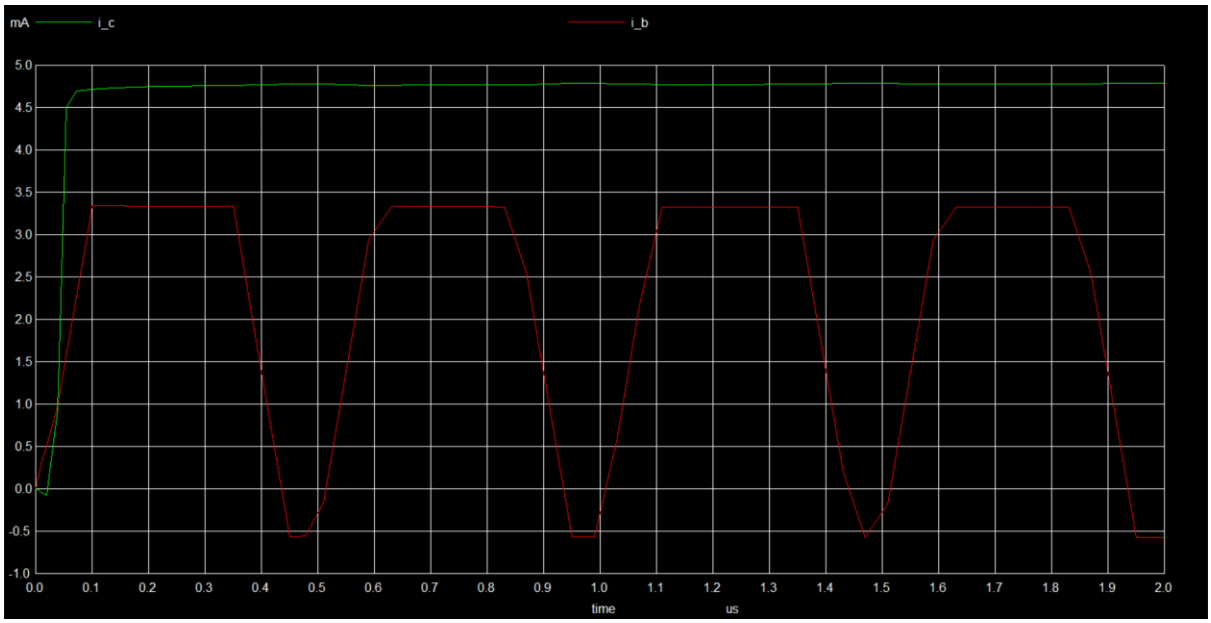


NMOS

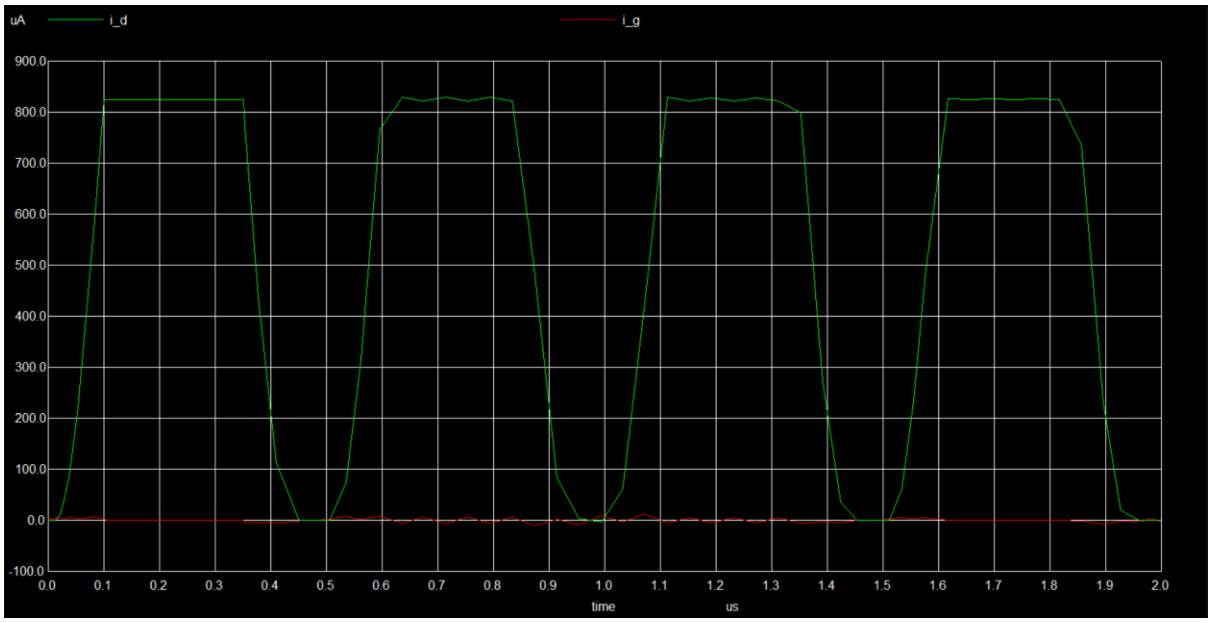


I_C vs I_B

BJT



NMOS

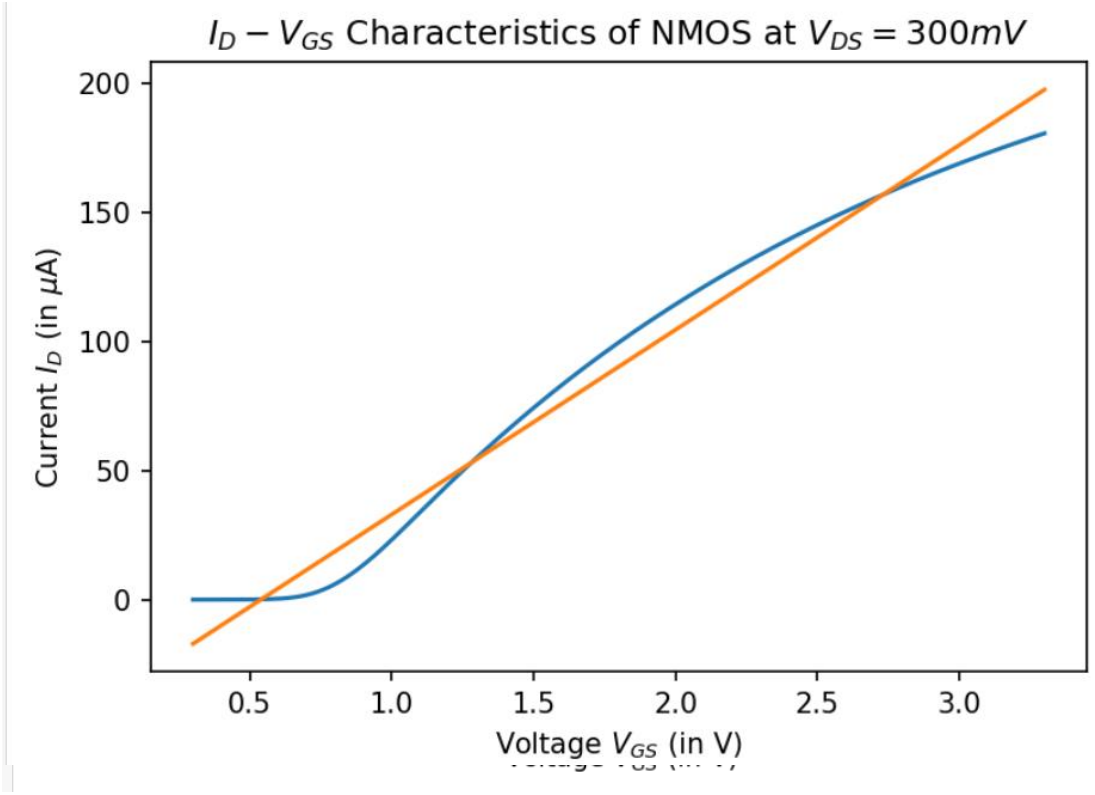


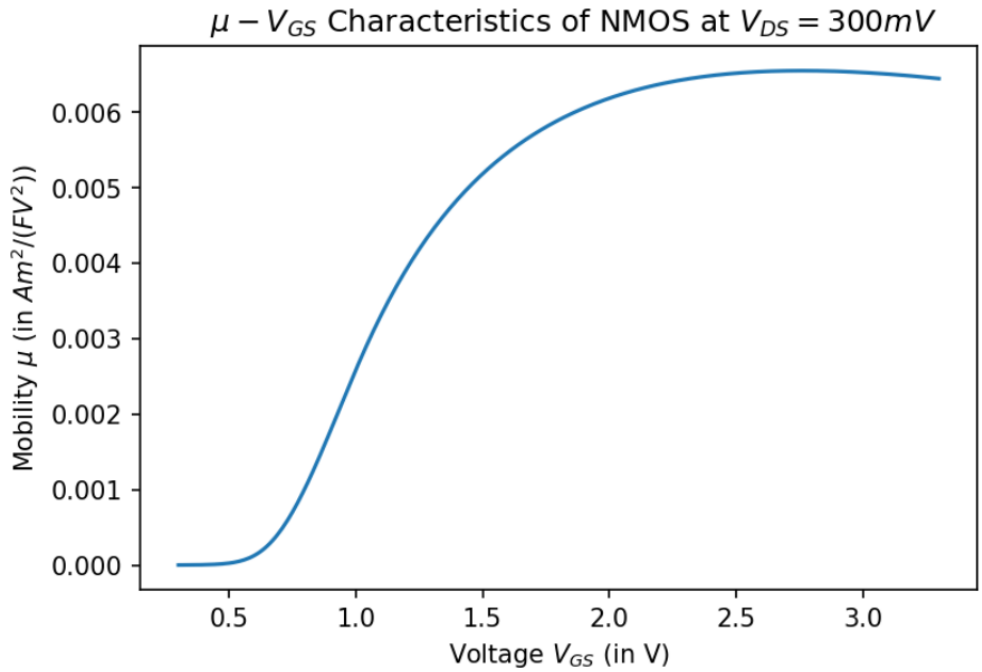
BJT doesn't turn off

NMOS turn off time = 9.73821e-07 - 9.53659e-07 = 20.162ns

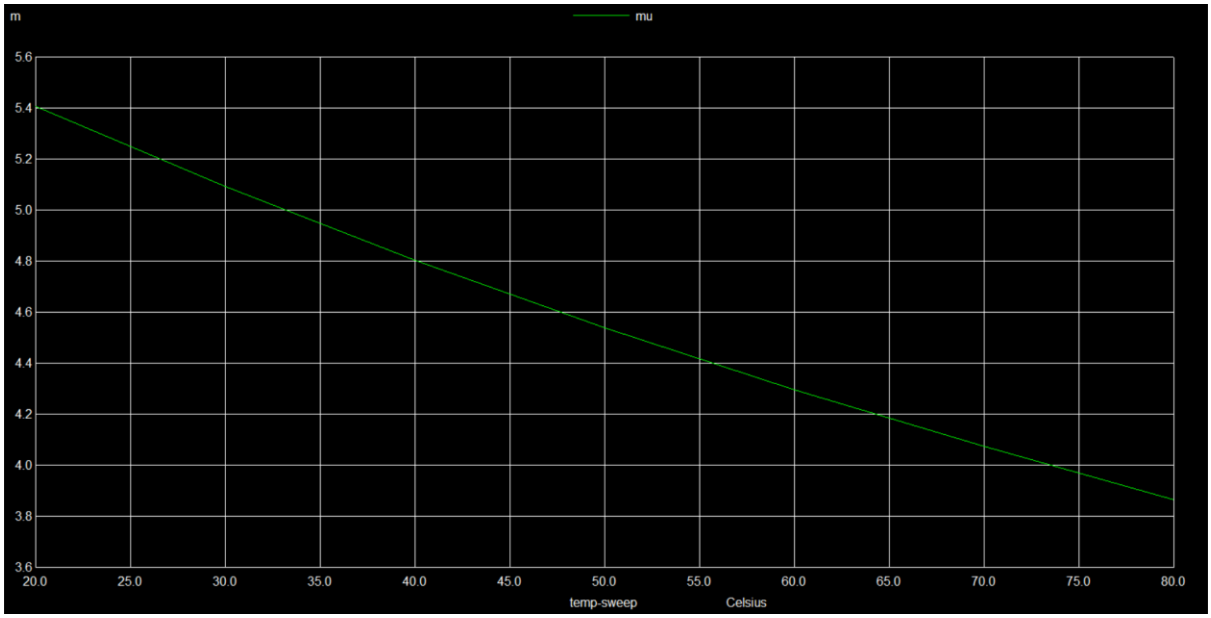
Q2) a)

Blue – Original Value





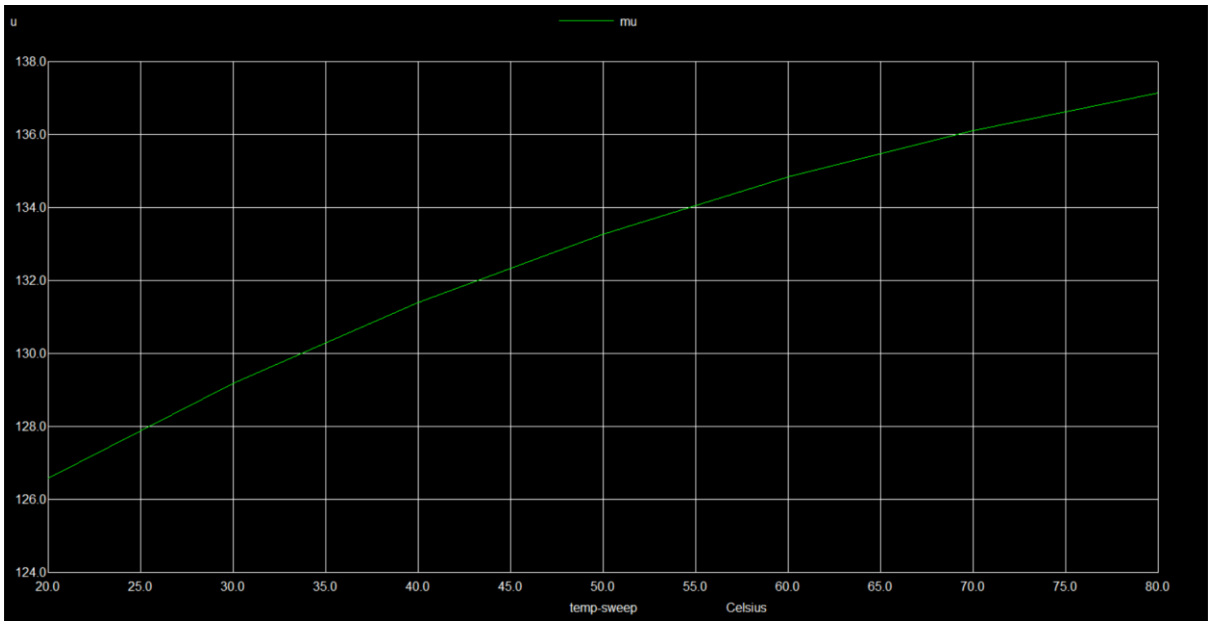
Q2) b)



V_GS = 1.5V

Mobility vs temp

V_GS = 0.6V

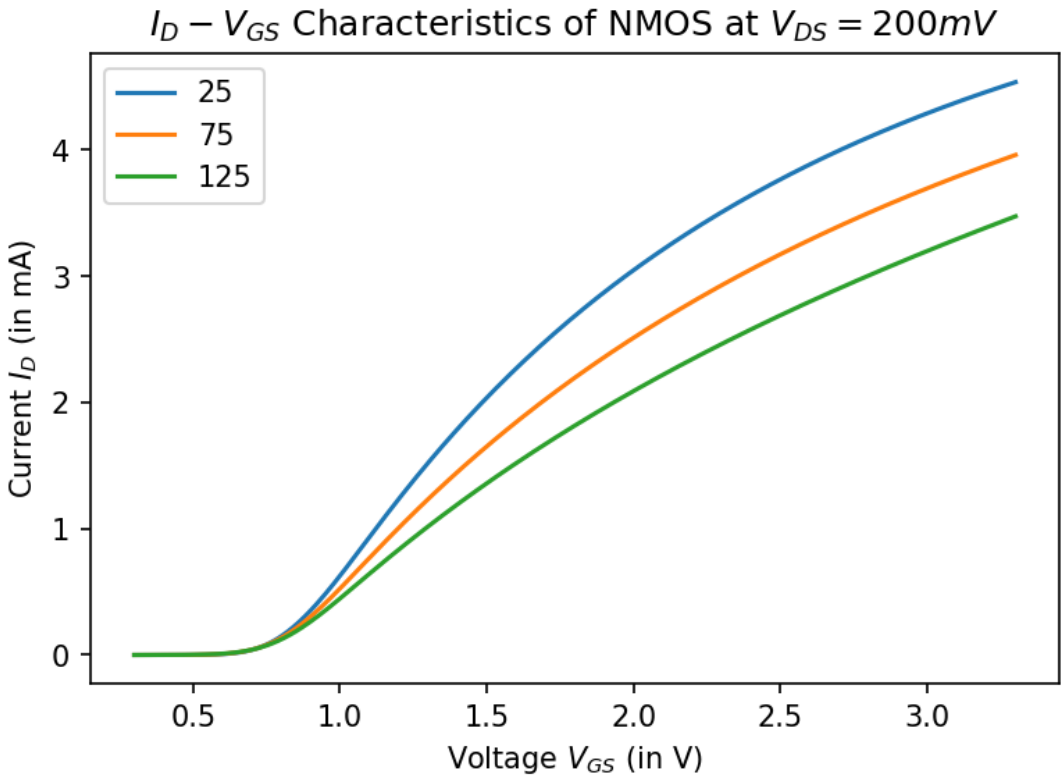


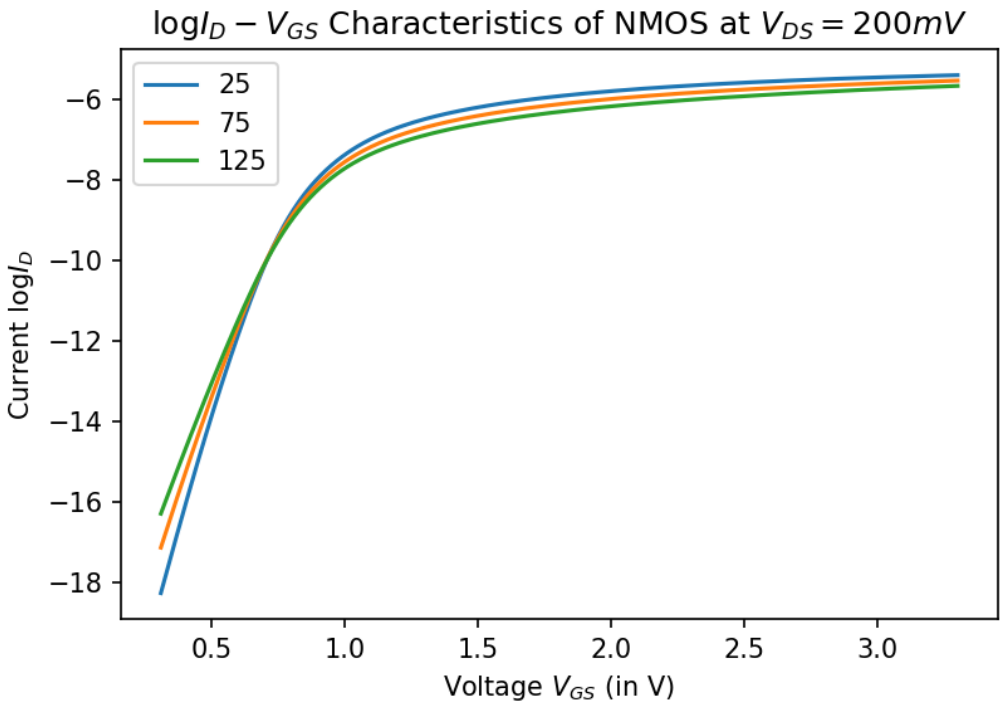
Q2) c) SS in mV/decade

41.326124249702865

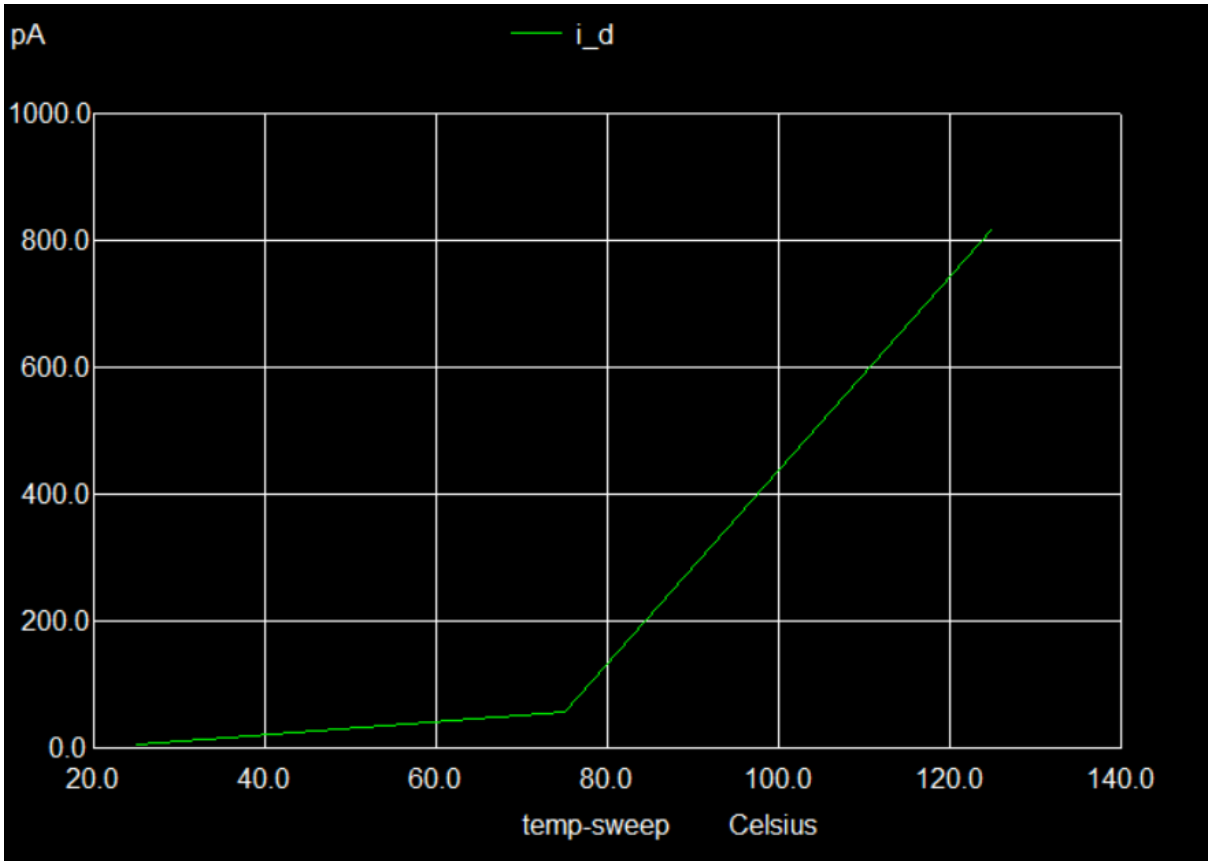
48.70882175407157

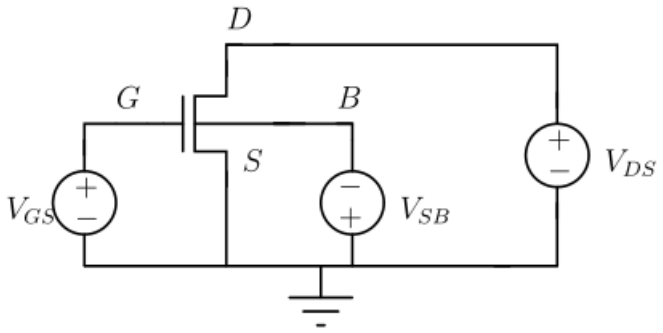
56.56533984425148





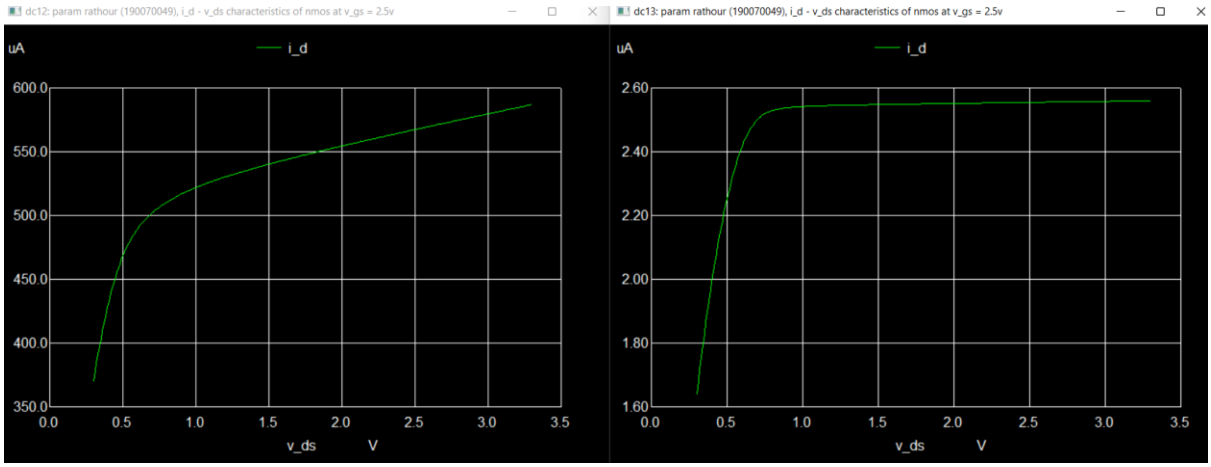
Off current


pA
i_d
1000.0
800.0
600.0
400.0
200.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
temp-sweep
Celsius


D
G
B
S
V_{GS}
V_{SB}
V_{DS}

Q3) a)

R_o = 7122.99ohm and 1.10646Mohm resp



b)

```
41.326124249702865
48.70882175407157
```

SS in mV/decade

```
V_T = 4.699009814974704
g_m = 2.481110221357284
41.326124249702865
V_T = 4.927494531345755
g_m = 2.32694562875144
48.70882175407157
```