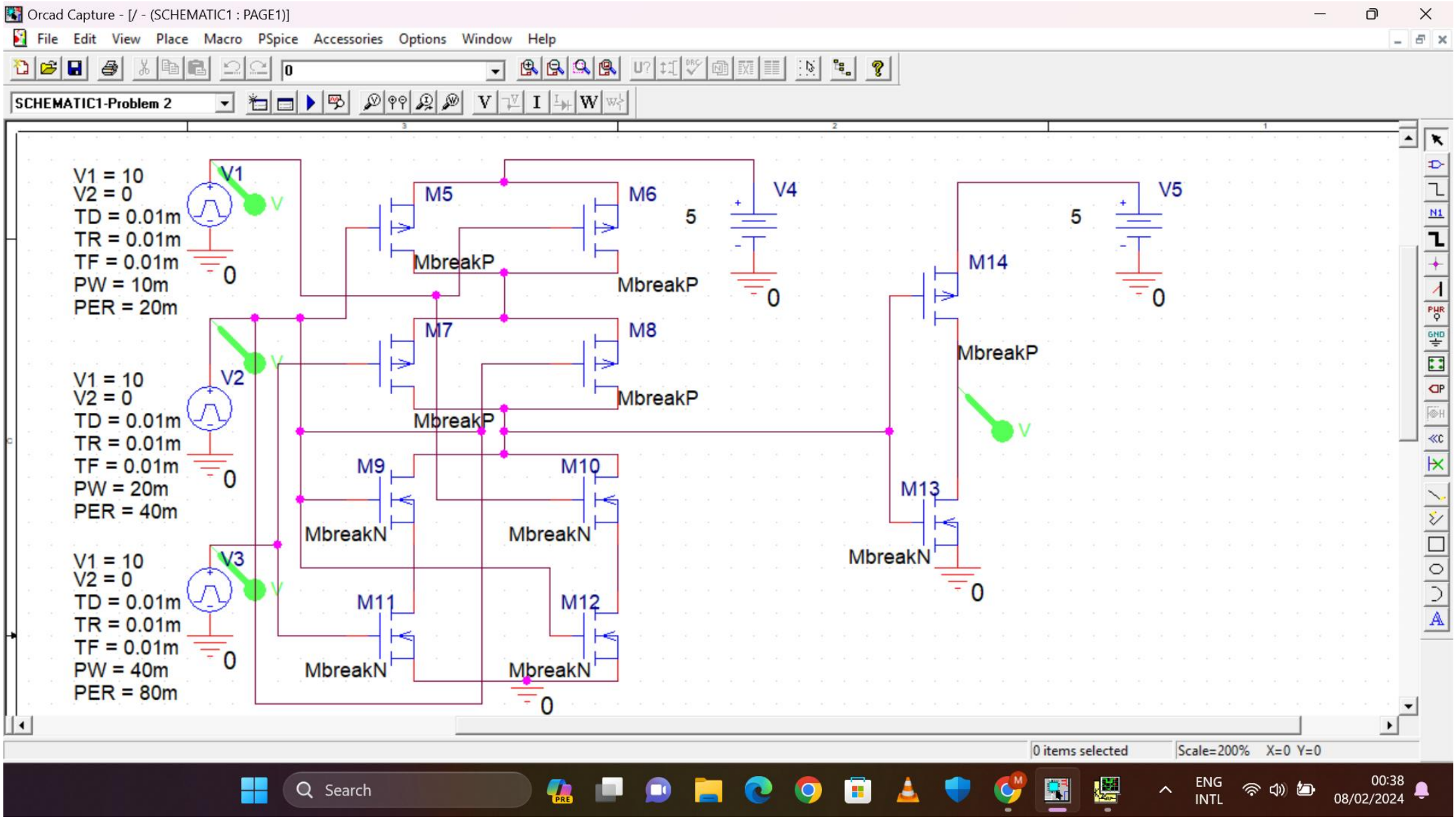
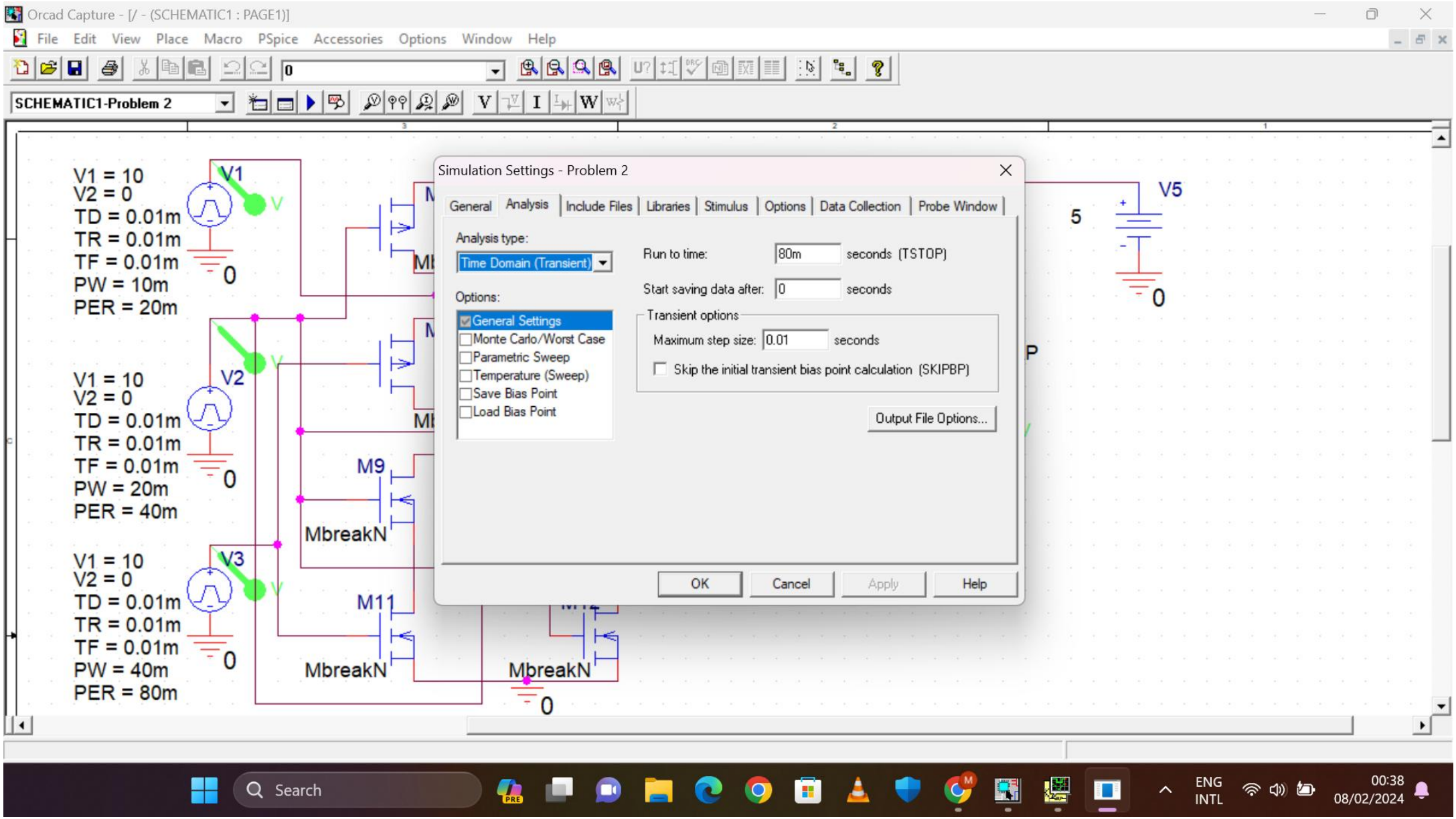
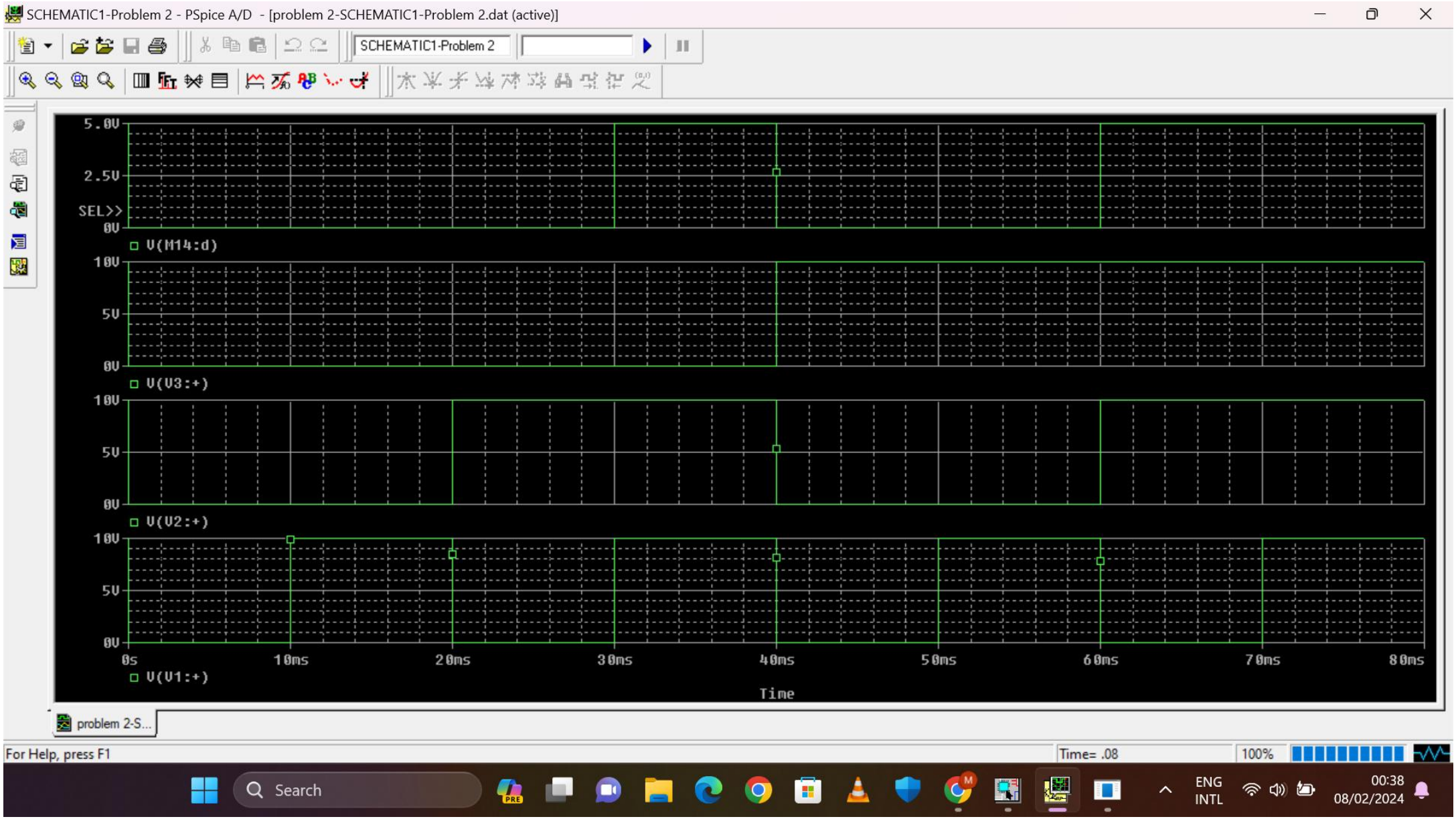
Problem no. 4

Design a CMOS gate circuit for the Boolean expression (circuits and input-output curves)
F= X Y + Y Z
(where X, Y and Z are inputs)


Orcad Capture - [/ - (SCHEMATIC1 : PAGE1)]
File Edit View Place Macro PSpice Accessories Options Window Help
SCHEMATIC1-Problem 2
V1 = 10
V2 = 0
TD = 0.01m
TR = 0.01m
TF = 0.01m
PW = 10m
PER = 20m
V1
V2 = 0
TD = 0.01m
TR = 0.01m
TF = 0.01m
PW = 20m
PER = 40m
V2
V1 = 10
V2 = 0
TD = 0.01m
TR = 0.01m
TF = 0.01m
PW = 40m
PER = 80m
V3
M5
M6
M7
M8
M9
M10
M11
M12
M13
M14
MbreakP
MbreakN
V4
V5
5
0
0 items selected
Scale=200% X=0 Y=0
Search
ENG
INTL
00:38
08/02/2024


Orcad Capture - [/ - (SCHEMATIC1 : PAGE1)]
File Edit View Place Macro PSpice Accessories Options Window Help
SCHEMATIC1-Problem 2
V1 = 10
V2 = 0
TD = 0.01m
TR = 0.01m
TF = 0.01m
PW = 10m
PER = 20m
V1
0
V1 = 10
V2 = 0
TD = 0.01m
TR = 0.01m
TF = 0.01m
PW = 20m
PER = 40m
V2
0
V1 = 10
V2 = 0
TD = 0.01m
TR = 0.01m
TF = 0.01m
PW = 40m
PER = 80m
V3
0
M9
MbreakN
M11
MbreakN
MbreakN
0
V5
5
0
Simulation Settings - Problem 2
General
Analysis
Include Files
Libraries
Stimulus
Options
Data Collection
Probe Window
Analysis type:
Time Domain (Transient)
Options:
General Settings
Monte Carlo/Worst Case
Parametric Sweep
Temperature (Sweep)
Save Bias Point
Load Bias Point
Run to time:
80m
seconds (TSTOP)
Start saving data after:
0
seconds
Transient options
Maximum step size:
0.01
seconds
Skip the initial transient bias point calculation (SKIPBP)
Output File Options...
OK
Cancel
Apply
Help
Search
ENG
INTL
00:38
08/02/2024


SCHEMATIC1-Problem 2 - PSpice A/D - [problem 2-SCHEMATIC1-Problem 2.dat (active)]
SCHEMATIC1-Problem 2
5.0V
2.5V
SEL>>
0V
V(M14:d)
10V
5V
0V
V(V3:+)
10V
5V
0V
V(V2:+)
10V
5V
0V
0s
10ms
20ms
30ms
40ms
50ms
60ms
70ms
80ms
V(V1:+)
Time
problem 2-S...
For Help, press F1
Time= .08
100%
Search
ENG
INTL
00:38
08/02/2024