CAD ASSIGNMENT 3

EE476 DIGITAL INTEGRATED CIRCUIT DESIGN

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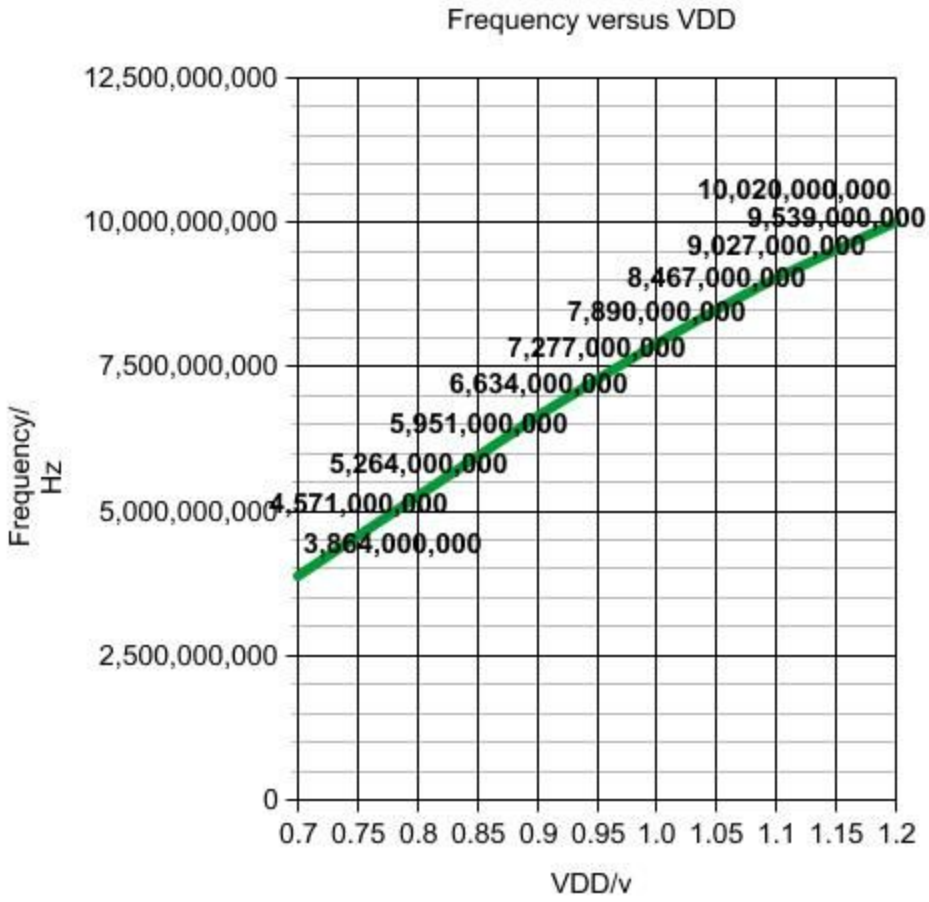
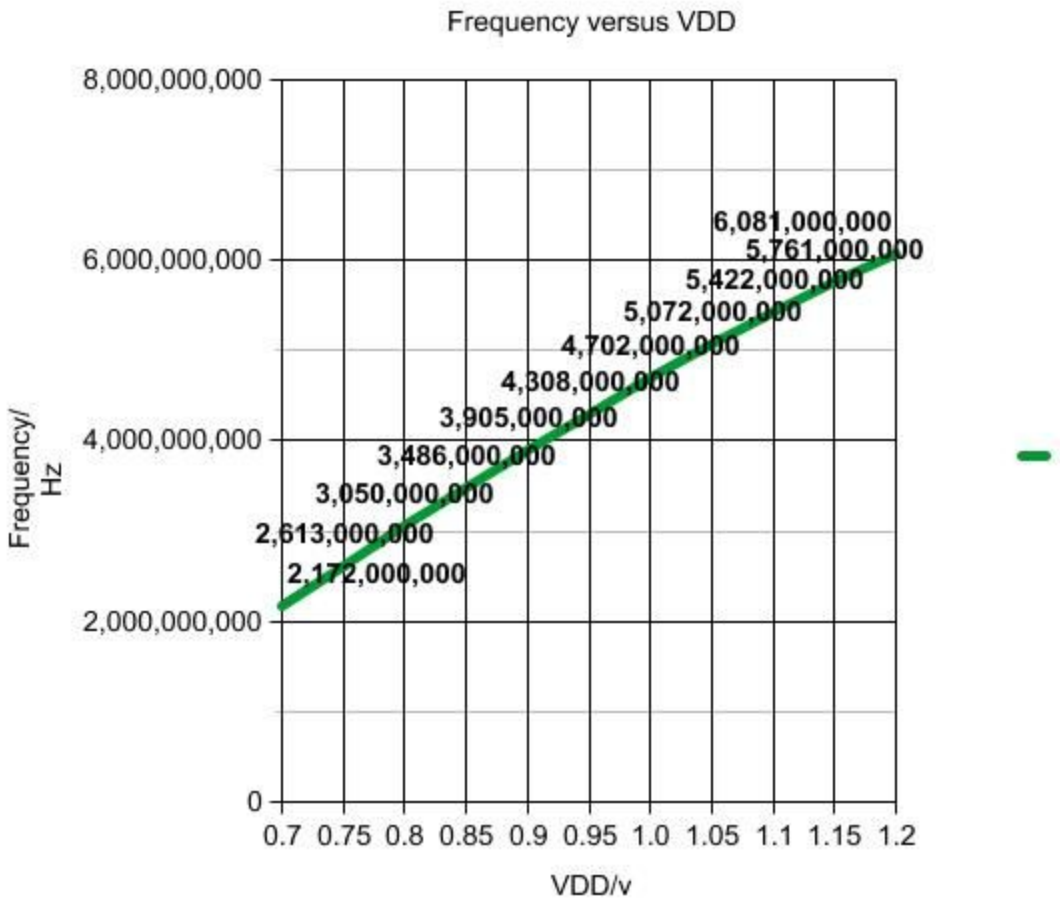
PART 7: Additional Questions

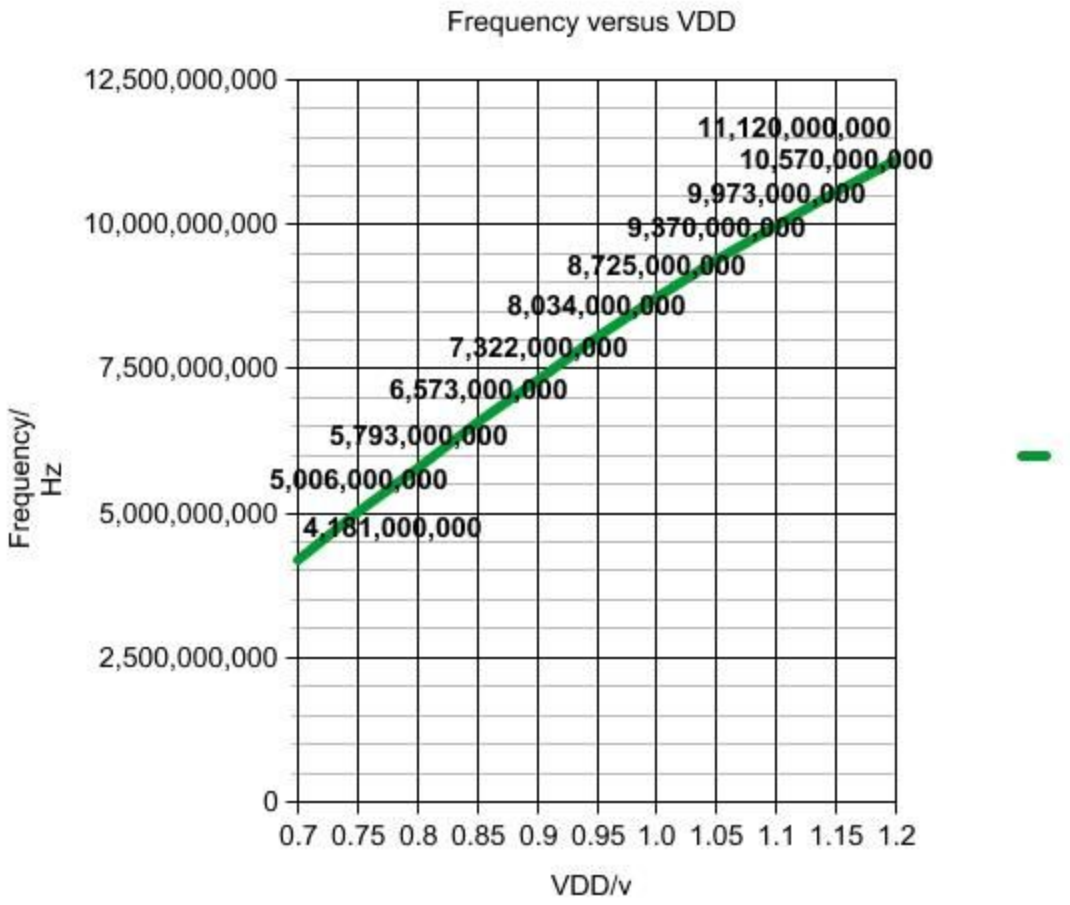
RING_OSC SCHEMATIC



RING_OSC LAYOUT



RING_OSC _2X SCHEMATIC



The reason that ring_osc and ring_osc_2x are similar is that the time constant does not change. When you double the width, the resistance decrease, but capacitance increase, and the proportion are same, so time constant does not change, and then they will have similar curve.

The reason that all three graphs are linear is that the vdd is linearly related to rise time and fall time, so the curve will linearly related to rise time and fall time.