

Quiz 11

CSCI-UA.0480-005

Special Topics: Electrical Engineering for Computer Scientists

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April 30, 2015 @ 9:30 AM

1. From the truth table below:
 - (a) Sketch the Karnaugh Map for this function.
 - (b) Using the Karnaugh Map, determine the simplest sum-of-products form for this function.
 - (c) Draw the corresponding circuit diagram using only two port **AND**, **OR**, and/or **NOT** gates.

A	B	C	F
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

2. If we sample a signal that contains frequency content up to 2 GHz, what must our sampling rate be to fully reconstruct the signal?
3. If we properly sampled a sinusoid with function $x(t) = \sin(\omega t)$ Volts, at a rate greater than the Nyquist rate, and quantize these samples into finite values with quantization bins of 0.5 volts, how many bits are used to store each sample?