EECE 2116, Sec #2
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HW #10
4/11/18

1.
a. [1][2][3][4][5][6][7][8][9][10]

1998	7,500,000
1999	9,500,000
2000	21,000,000
2001	45,000,000
2002	55,000,000
2003	105,900,000
2004	112,000,000
2005	228,000,000
2006	291,000,000
2007	463,000,000
2008	758,000,000
2009	904,000,000
2010	1,200,000,000
2011	2,270,000,000
2012	3,100,000,000
2013	4,200,000,000
2014	5,560,000,000
2015	7,100,000,000
2016	7,200,000,000
2017	19,200,000,000

b. One of the sources to acquire new knowledge is from online forum like Stackoverflow or Stackexchange. If our intentions are not researching for inventing new technologies but rather learn state of the art knowledge, I believe it is a great place to go. They are online and free to access for everyone. Another place for new knowledge could be MOOC like Coursera. However, this source applies more closely to knowledge that is far from our expertise. But innovation often come from other sources, just like in Silicon Valley depicts, new algorithm doesn't necessarily come from rigid math calculations but also could be a joke that your friends made. I am a senior and these two sources have greatly enhanced my self-learning ability throughout the year, which is quite crucial to the engineering track.

2. 64 = 2^6 so 6 selection lines for each of the multiplexers and decoder.

3.

Op#	DA	AA	BA	FS	Operation	Result
1	R3	R3	R1	A+B	R3← R3+R1	R3=01100111=g
2	R4	R4	R1	AvB	R4← R4 v R1	R4=01110100=t
3	R5	R5	R1	AxorB	R5← R5 xor R1	R5=01101100=l
4	R1	R1	R0	A'	R1← R1'	R1=11011111
5	R1	R1	R0	A+1	R1← R1+1	R1=11100000
6	R6	R6	R1	A+B'+1	R6← R6+R1'+1	R6=01100001=a
7	R7	R7	R1	A+B'+1	R7← R7+R1'+1	R7=01101001=i
8	R1	R7	R0	A	R1← R7	R1=01101001=i

R1=i, R2=D, R3=g, R4=t, R5=l, R6=a, R7=i
Digital

4.
(a) 16 address lines, 8 input/output data lines
(b) 19 address line, 32 input/output data lines
(c) 26 address lines, 64 input/output data lines
(d) 31 address lines, 1 input/output data lines

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