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19BCE245

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Practical 4

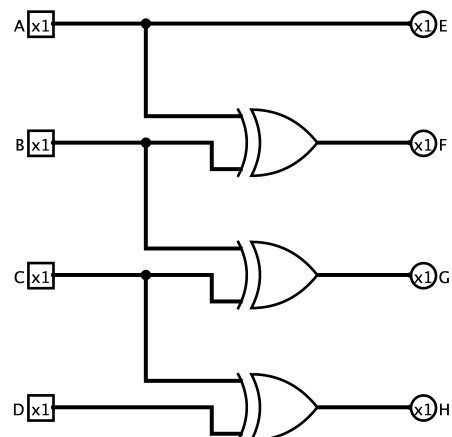
Practical 4A

Design and implementation of binary to Gray and vice-versa code converter.

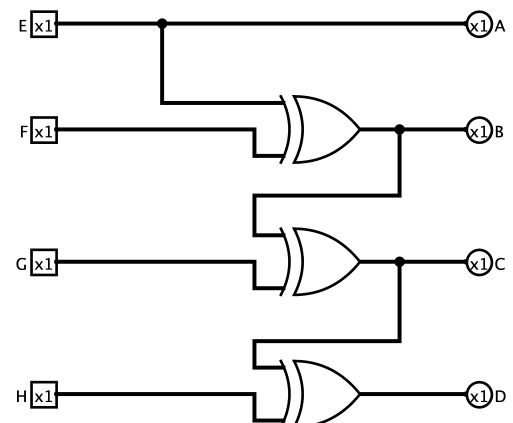
Binary				Gray			
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	0	1	0	0	0	1	1
0	0	1	1	0	0	1	0
0	1	0	0	0	1	0	0
0	1	0	1	0	1	1	1
0	1	1	0	0	1	0	1
0	1	1	1	0	1	0	0
1	0	0	0	1	1	0	0
1	0	0	1	1	1	0	1
1	0	1	0	1	1	1	1
1	0	1	1	1	1	1	0
1	1	0	0	1	0	1	0
1	1	0	1	1	0	1	1
1	1	1	0	1	0	0	1
1	1	1	1	1	0	0	0

Gray				Binary			
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	1
0	0	1	0	0	0	1	1
0	0	1	1	0	0	1	0
0	1	0	0	0	1	1	1
0	1	0	1	0	1	1	0
0	1	1	0	0	1	0	0
0	1	1	1	0	1	0	1
1	0	0	0	1	1	1	1
1	0	0	1	1	1	1	0
1	0	1	0	1	1	0	0
1	0	1	1	1	1	0	1
1	1	0	0	1	0	0	0
1	1	0	1	1	0	0	1
1	1	1	0	1	0	1	1
1	1	1	1	1	0	1	0

Binary to Gray (4 bit)



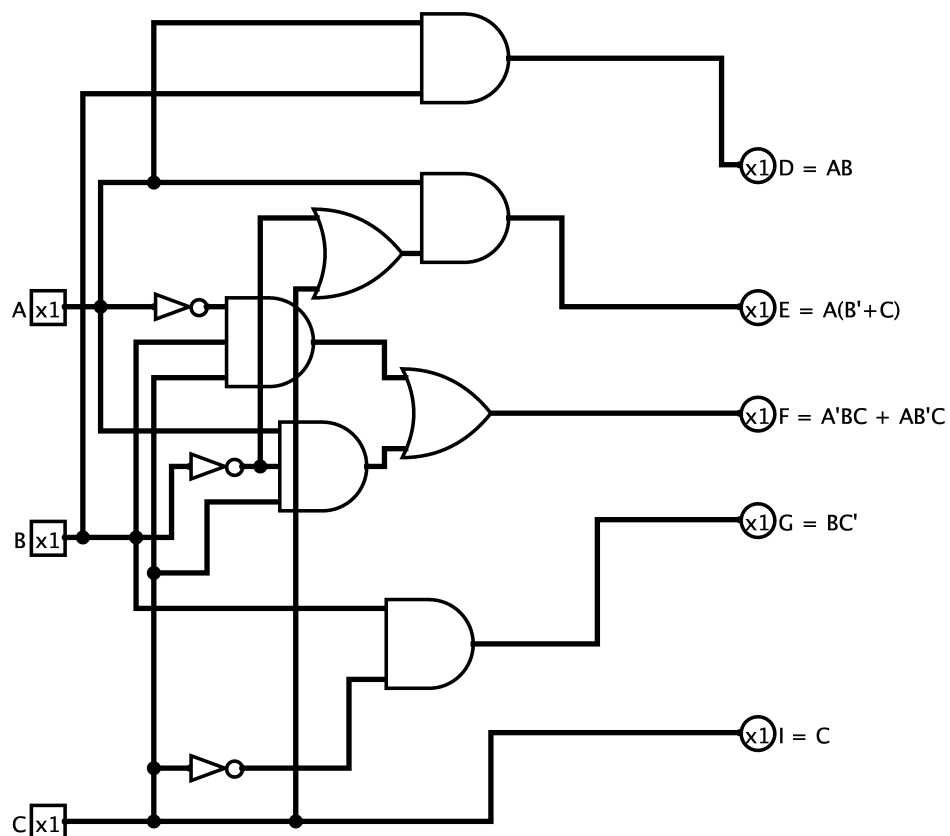
Gray to Binary (4 bit)



Practical 4B

Design and implementation of a combinational circuit that generates the square of a given 3-bit number

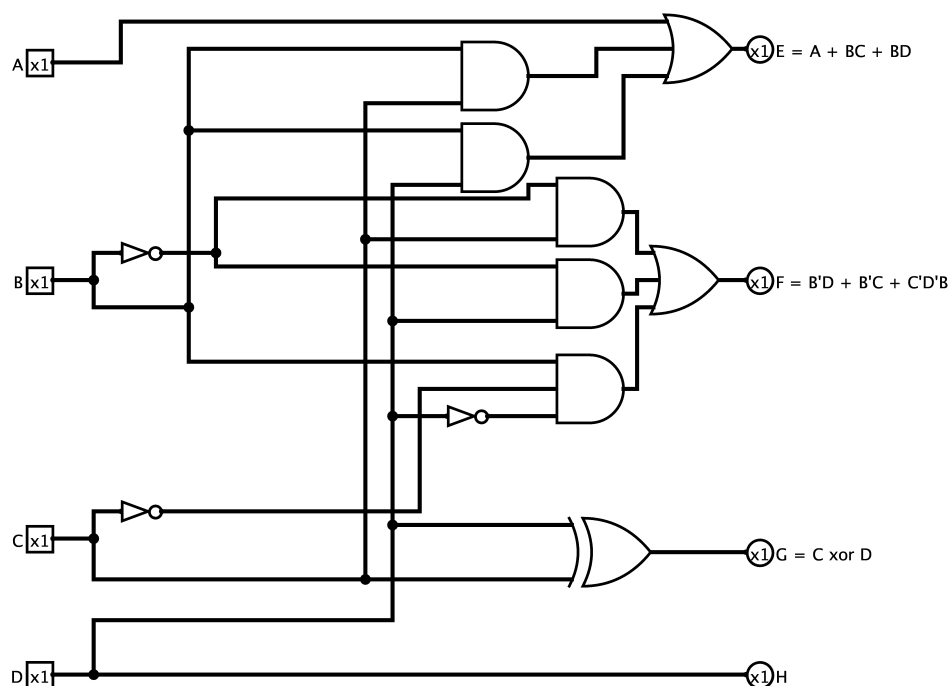
Decimal number	A	B	C	Decimal square	D	E	F	G	H	I
0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	0	0	0	0	0	1
2	0	1	0	4	0	0	0	1	0	0
3	0	1	1	9	0	0	1	0	0	1
4	1	0	0	16	0	1	0	0	0	0
5	1	0	1	25	0	1	1	0	0	1
6	1	1	0	36	1	0	0	1	0	0
7	1	1	1	49	1	1	0	0	0	1



Practical 4C

Design and implementation of a combinational circuit that converts the given **BCD** number into equivalent 84-2-1 number.

BCD					84-2-1				
	A	B	C	D	E	F	G	H	
0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	1	1	1	1
2	0	0	1	0	0	1	1	0	0
3	0	0	1	1	0	1	0	1	1
4	0	1	0	0	0	1	0	0	0
5	0	1	0	1	1	0	1	1	1
6	0	1	1	0	1	0	1	0	0
7	0	1	1	1	1	0	0	0	1
8	1	0	0	0	0	1	0	0	0
9	1	0	0	1	1	1	1	1	1



Practical 4D

Design and implementation of a combinational circuit that converts a decimal digit from the 2421 code to 84-2-1 code.

2421						84-2-1				
		A	B	C	D	E	F	G	H	
0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	1	0	1	1	1	1
2	2	0	0	1	0	0	1	1	0	0
3	3	0	0	1	1	0	1	0	1	1
4	4	0	1	0	0	0	1	0	0	0
5	11	1	0	1	1	1	0	1	1	1
6	12	1	1	0	0	1	0	1	0	0
7	13	1	1	0	1	1	0	0	0	1
8	14	1	1	1	0	1	0	0	0	0
9	15	1	1	1	1	1	1	1	1	1

