

DLD

BCD Adder :->

BCD Sum

Binary Sum

C S₈ S₄ S₂ S₁

K Z₈ Z₄ Z₂ Z₁

0 0 0 0 0 → 0

0 0 0 0 0 → 1

0 0 0 0 1 → 1

0 0 0 0 1 → 2

⋮ ⋮ ⋮

⋮ ⋮ ⋮

0 1 0 0 1 → 9

0 1 0 0 1 → 9

1 0 0 0 0 → 10

0 1 0 1 1 → 10

1 0 0 0 1 → 11

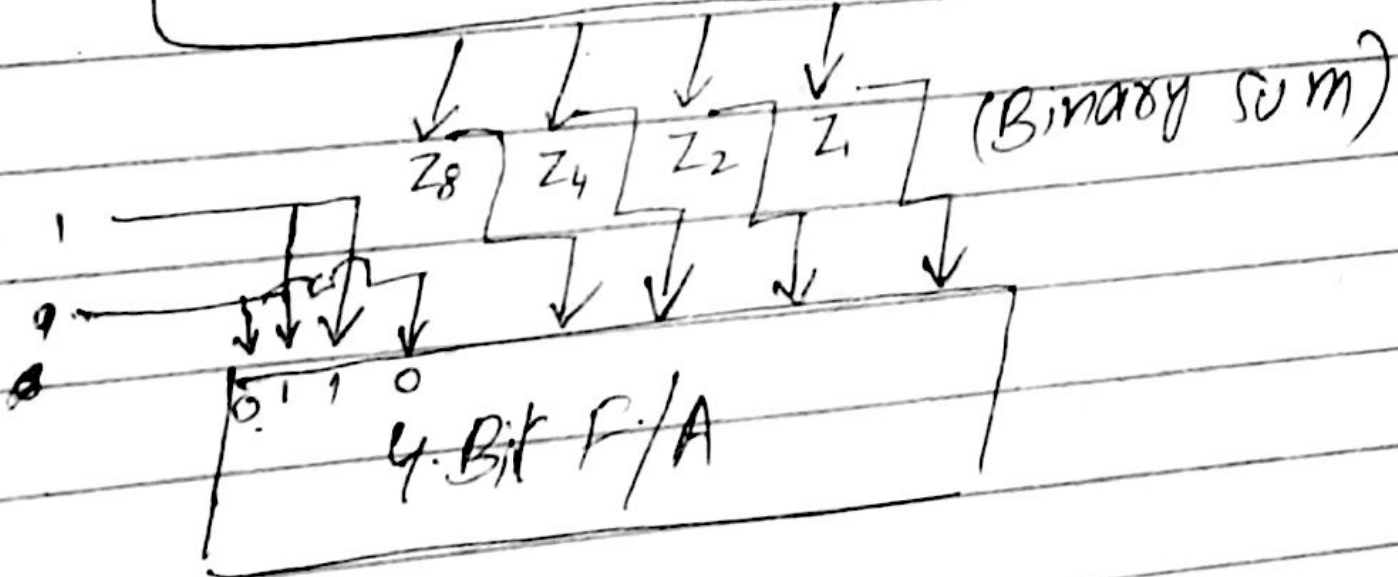
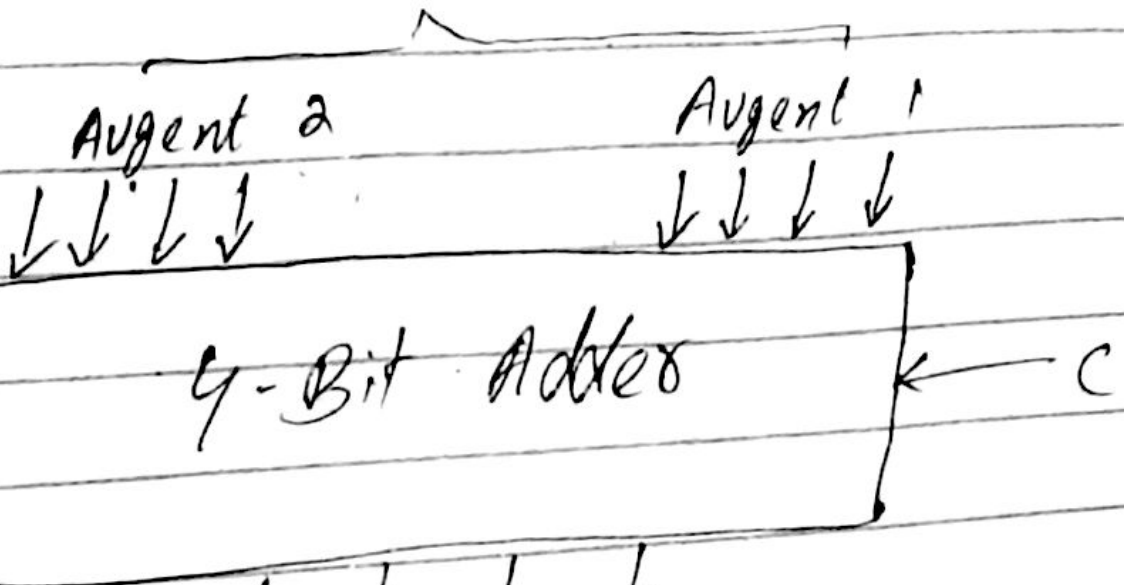
0 1 1 0 0 → 11

1 0 0 0 0 → 16

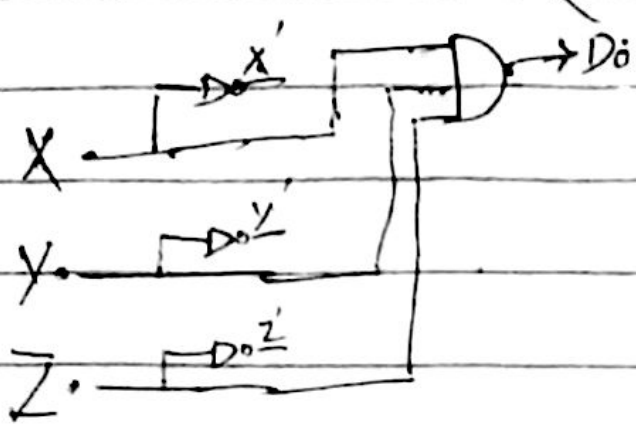
1 0 0 0 1 → 17

1 0 0 1 1 → 19

BCD Code

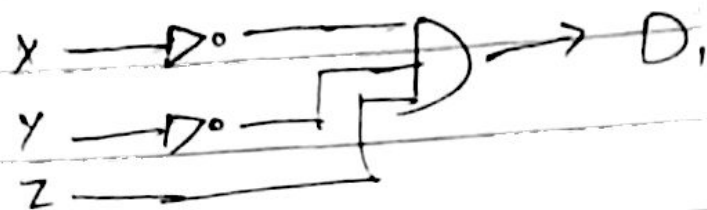
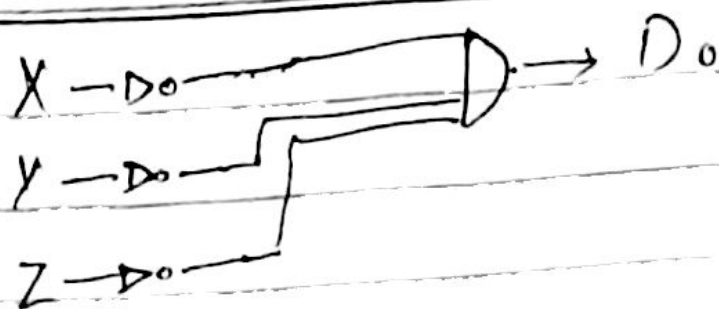


Decoders:



- D_0 xyz
- D_1 $xy'z$
- D_2 $x'yz$
- D_3 $x'y'z$
- D_4 $x'yz'$
- D_5 $x'y'z'$
- D_6 $x'yz'$
- D_7 $x'y'z'$

X	Y	Z	D_0	D_1	D_2	D_3	D_4	D_5	D_6	D_7
0	0	0	1							
0	0	1		1						
0	1	0			1					
0	1	1				1				
1	0	0					1			
1	0	1						1		
1	1	0							1	
1	1	1								1



~~Input~~ Encoder

Input

D_0	D_1	D_2	D_3	D_4	D_5	D_6	D_7
1							
	1						
		1					
			1				
				1			
					1		
						1	
							1

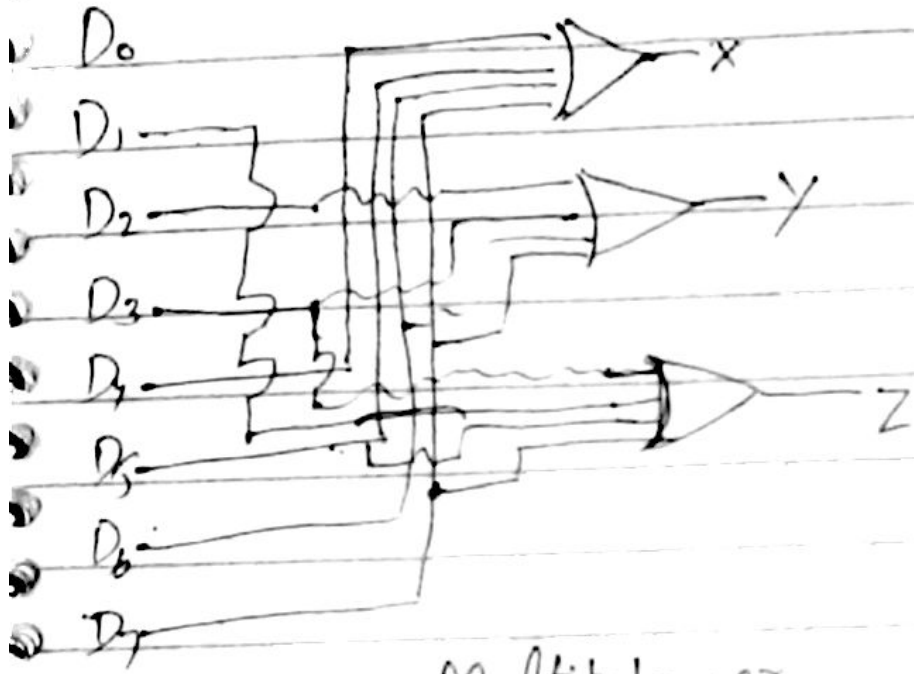
Output

X	Y	Z
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0
1	0	1
1	1	0
1	1	1

$$x = D_4 + D_5 + D_6 + D_7$$

$$y = D_2 + D_3 + D_6 + D_7$$

$$z = D_1 + D_3 + D_5 + D_7$$



Multiplexer

