تمرین ۱

402 163 410 543 13

1-

A $(457)_8$ =

$4_8 = 100_2$

$5_8 = 101_2$

$7_8 = 111_2$

$\Rightarrow (100101111)_2$

B. $7\tilde{A}9^4 + 3\tilde{A}9^3 + 8\tilde{A}9^2 + 5\tilde{A}9^1 \Rightarrow$

45927 + 2187 + 648 + 45 + 2

48809 | 3 → 2 → 16269 | 3 → 0 → 5423 | 3 → 2 → 1807 | 3 → 2 → 602 | 3 → 2 → 200 | 3 → 0 → 66 | 3 → 1 → 22 | 3 → 1 → 7 | 3 → 1 → 2 | 3 → 2 → 0

$\Rightarrow (211022\,1202)_3$

C. C = 1100 4 = 0100

F = ~~11~~1111 F = 1110 $\Rightarrow$

$(1100\,1111\,1000\,1110)_2$

2- $(2458)_{10} = 8192 + 1024 + 80 + 8 = 9304$

$(7100)_{10} = 23672 + 256 + 208 + 0 = 29136$

$(38440)_{10} = (9628)_{16}$

9628

38440

2. 9F1B = 36864 + 3840 + 16 + 11 = 40731

4A36 = 16384 + 2560 + 48 + 6 = 19000

21731 ∟16
1358 ∟16
84 ∟16
5 ∟16
0

3, 14 (E), 4, 5

21731 → $(54E3)_{16}$

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3. $(9999)_{10}$ ∟2
4999 ∟2
1249 ∟2
624 ∟2
312

1, 1, 1, 1, 0

312 ∟2
156 ∟2
78 ∟2
39 ∟2
19 ∟2
9 ∟2
4 ∟2
2 ∟2
1

1, 0, 0, 1, 1, 1, 0, 1

$(10011100001111)_2$

4.

a = 1, b = 1, d = 0, C = 1 1 0 (هردوحالت) اول تا بین تعادل

f(a,b,c,d) = $\sum_m (2, 3, 6, 7, 12, 14)$ ← جواب

a	b	c	d	M	
0	0	1	0	0010	M2
0	0	1	1	0011	M3
0	1	1	0	0110	M6
0	1	1	1	0111	M7

2

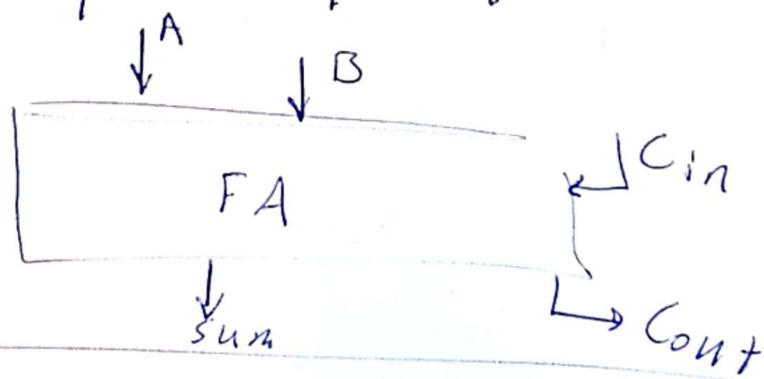
5. FA

A, B, Cin ⟹ Sum, Cout

$Sum = A \oplus B \oplus C_{in}$

$C_{out} = (A \cdot B) + (C_{in} \cdot (A \oplus B))$

A	B	C_{in}	Sum	C_{out}
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	~~0~~ ⇒ 1	0	~~0~~ ⇒ 1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1



6- inputs: x, y current: A, B

وضعیت فعلی

output: Z

در نتیجه حالات $2^4 = 16$

6.

A	B	x	y	JA	KA	JB	KB	A^+	B^+	Z
		A	B	B	A	J	A	KA	JB KB	
0	0	0	0	1	0	0	1	1	1	0
0	0	0	1	1	0	0	1	1	1	0
0	0	1	0	0	0	0	0	0	0	0
0	0	1	1	0	0	0	0	0	0	0
0	1	0	0	1	0	0	1	1	1	0
0	1	0	1	0	0	0	1	0	1	0
0	1	1	0	1	0	0	1	1	1	1
0	1	1	1	1	1	0	1	1	1	1
1	0	0	0	1	0	0	1	0	1	0
1	0	0	1	1	0	0	1	0	1	0
1	0	1	0	0	0	1	1	1	1	1
1	0	1	1	0	0	1	1	1	1	1
1	1	0	0	1	0	0	1	0	1	0
1	1	0	1	0	0	0	1	0	1	0
1	1	1	0	1	0	1	1	1	1	1
1	1	1	1	1	1	1	1	0	0	

A^+ B^+ $J=1, K=0 \Rightarrow Q^+=1$ $J=1, K=1 \Rightarrow Q^+=\sim Q$

$J=0, K=1 \Rightarrow Q^+=0$ $J=0, K=0 \Rightarrow Q^+=Q$

State diagram $\Rightarrow$ $S_0=00$ $S_1=01$

$S_2=10$ $S_3=11$