

Exam # 1

Domanda 1: $110111010 \Rightarrow \#4$

199		1
99		1
49		1
24		0
12		0
6		0
3		1
		1

243		1
121		1
60		0
30		0
15		1
7		1
3		1
		1

	1	1	0	0	0	1	1	1	
+	1	1	1	1	0	0	1	1	
<hr/>									
	1	1	0	1	1	1	0	1	0

Domanda 2: $4 \Rightarrow \#3$

$$\begin{aligned} \text{Inc} &= (600 + 600 + 500 + 400 + 700) / 700 \\ &= 2800 / 700 \\ &= 4 \end{aligned}$$

Domanda 3: $100100000 \Rightarrow \#2$

24		0
12		0
6		0
3		1
		1

12		0
6		0
3		1
		1

	1	1	0	0	0				
*	1	1	0	0					
<hr/>									
	0	0	0	0	0				
+	0	0	0	0	0				
	1	1	0	0	0				
	1	1	0	0	0				
<hr/>									
	1	0	0	1	0	0	0	0	0

Domanda 4: Fatta in lezione precedente.

Domanda 5: $\%rax + 1 \Rightarrow \#1$

Domanda 6: $1 + y2 \Rightarrow \#5$

The 1 fa tutta l'espressione vera

Domanda 7: Processore - Slide # 23 $\Rightarrow \#2$

$$\# \text{ set} = 512 / 2$$
$$= 256$$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

2019.09.09

$$C_{\text{eff}} = \frac{1}{\alpha} \ln \frac{1}{1 - \alpha}$$

100

--	--	--

Libre de...

0	45
0	51
0	5
1	3
1	12

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

$$2.5 \times 10^{-2} \text{ mol} \times 1000 \text{ g mol}^{-1} = 25 \text{ g}$$

Exam # 2

Domanda 1: $10000.101111 \Rightarrow \# 5$

$$\begin{array}{r} 0111 \quad 01001 \\ 11000.101100 \\ - 00111.111101 \\ \hline 10000.101111 \end{array}$$

Domanda 2: $y = \overline{\overline{x_3 x_2} \cdot \overline{x_1} \cdot \overline{x_3 x_2}} \Rightarrow \# 4$

$$\begin{aligned} y &= \overline{\overline{x_3 x_2} \cdot \overline{x_1} \cdot \overline{x_3 x_2}} \\ &= \overline{\overline{x_3 x_2} \cdot \overline{x_1} \cdot \overline{x_3 x_2}} \end{aligned}$$

Domanda 3: $10011010 \Rightarrow \# 4$

$$\begin{array}{r|l} 154 & 0 \\ 7 & 1 \\ 38 & 0 \\ 19 & 1 \\ 9 & 1 \\ 4 & 0 \\ 2 & 0 \\ & 1 \end{array}$$

Domanda 4: $\overline{b \cdot (a + c + 1)} \Rightarrow \# 6$

$$F = \overline{ab + bc + ac}$$

$$= \overline{ab} \cdot \overline{bc} \cdot \overline{ac} \rightarrow \text{Opzione \# 2}$$

$$= (\overline{a} + \overline{b}) \cdot (\overline{b} + \overline{c}) \cdot (\overline{a} + \overline{c}) \rightarrow \text{Opzione \# 1}$$

$$= (\overline{a} \overline{b} + \overline{a} \overline{c} + \overline{b} \overline{b} + \overline{b} \overline{c}) \cdot (\overline{a} + \overline{c})$$

$$= (\overline{a} \overline{b} + \overline{a} \overline{c} + \overline{b} + \overline{b} \overline{c}) \cdot (\overline{a} + \overline{c})$$

$$= [\overline{b} (\overline{a} + \overline{c}) + \overline{b} + \overline{a} \overline{c}] \cdot (\overline{a} + \overline{c})$$

$$= [\overline{b} (\overline{a} + \overline{c} + 1) + \overline{a} \overline{c}] \cdot (\overline{a} + \overline{c})$$

$$\rightarrow [\overline{b} (\overline{a} + \overline{c} + 1) + \overline{a} \overline{c}] \cdot (\overline{a} + \overline{c})$$

$$(\overline{b} + \overline{a} \overline{c}) \cdot (\overline{a} + \overline{c}) \rightarrow \text{Opzione \# 3}$$

$$\rightarrow [\overline{b} ((\overline{a} + 1) + \overline{c}) + \overline{a} \overline{c}] \cdot (\overline{a} + \overline{c})$$

$$(\overline{b} + \overline{b} \overline{c} + \overline{a} \overline{c}) \cdot (\overline{a} + \overline{c}) \rightarrow \text{Opzione \# 5}$$

Domanda 5 : Memoria - Slide # 10 \Rightarrow # 4

Domanda 6 : Input/Output \rightarrow Non Visto

Domanda 7 : Processore - Slide # 30 \Rightarrow # 3

Domanda 8 : Sequenziale - Slide # 9 \Rightarrow # 2

Domanda 9 : 2804.25 \Rightarrow # 2

① Bit segno \rightarrow 0 \Rightarrow Positivo

② Esponente \rightarrow 10001010₂ \equiv 138 - 127 = 11

③ Mantissa \rightarrow 1.0101110100010000

1.0.1.0.1.1.1.1.0.1.0.0.0.1.0 \equiv 2804.25

Domanda 10 : `ldr r3, [r0, #8]` \Rightarrow # 4

Domanda 11 :
`add $at, $a0, $t3`
`lw $t2, 0($at)` \Rightarrow # 5

① `add $at, $t3, $a0` \rightarrow Non fa nessun load

② `lw $t2, $t3($a0)` \rightarrow Lo spiazzamento NON può essere un registro

③ `mv $t2, $t3` \rightarrow Istruzione mv non esiste

Domanda 12 : ALU - Slide # 2 \Rightarrow # 3

Exam # 3

Domanda 1 : Processore - Slide # 24 \Rightarrow # 3

Domanda 2 : Nessuna delle altre risposte \Rightarrow # 4

Domanda 3 : $F = xy + z \Rightarrow$ # 3

$$F = x \cdot (y + z) + \overline{x + \bar{z}}$$

$$= xy + xz + \bar{x}z$$

$$= xy + z(x + \bar{x})$$

$$= xy + z$$

Domanda 4 : 5.8 \Rightarrow # 2

$$CPI = 4 + (0.01 * 100) + (0.04 * 100 * 0.2)$$

$$= 4 + 1 + 0.8$$

$$= 5.8$$

Domanda 5 : 11011100 \Rightarrow # 3

$$\begin{array}{r|l} 183 & 1 \\ 91 & 1 \\ 45 & 1 \\ 22 & 0 \\ 11 & 1 \\ 5 & 1 \\ 2 & 0 \\ & 1 \end{array}$$

$$\begin{array}{r|l} 37 & 1 \\ 18 & 0 \\ 9 & 1 \\ 4 & 0 \\ 2 & 0 \\ & 1 \end{array}$$

$$\begin{array}{r} 10110111 \\ + 100101 \\ \hline 11011100 \end{array}$$

Domanda 6 : $t_0 \Rightarrow$ # 1

$s_0 = 00000000000000000000000000000000$

$t_0 = 000000000000000000000000000000001111$

$t_0 = 111100000000000000000000000000000000$

$t_0 = 111100000000000000000000000000000000$

Domanda 7: Tool Chain - Slide # 9 \Rightarrow # 2

Domanda 8: `%rax` \Rightarrow # 3

`lea (%rdi, %rsi), %rax \rightarrow %rax = %rdi + %rsi`

Domanda 9: 2.5 \Rightarrow # 5

$$\begin{aligned} \text{Inc} &= (100 + 400 + 600 + 300 + 100) / 600 \\ &= 1500 / 600 \\ &= 2.5 \end{aligned}$$

Domanda 10: `%bp` \Rightarrow # 4

`movb (%rsi, %rax), %bp`

Domanda 11: Input/Output \rightarrow Non Visto

Domanda 12: Processore - Slide # 31 \Rightarrow # 1