

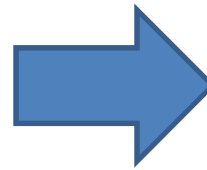
Calcolatori Elettronici (12AGA)

Esame del 27.6.2017

Correzione

Esercizio #10

$$ab' + abc + a'b'c' + a'bcd$$



0000	1
0001	1
0010	0
0011	0
0100	0
0101	0
0110	1
0111	0
1000	1
1001	1
1010	1
1011	1
1100	0
1101	0
1110	1
1111	1

Esercizio #10

		a b			
c d		00	01	11	10
	00	1	0	0	1
	01	1	0	0	1
	11	0	1	1	1
	10	0	0	1	1

Esercizio #10

Diagram illustrating a Karnaugh map for a 4-variable function (a, b, c, d). The map is a 4x4 grid with rows labeled by 'cd' and columns labeled by 'ab'.

Row labels (cd): 00, 01, 11, 10
Column labels (ab): 00, 01, 11, 10

The map contains the following values:

cd \ ab	00	01	11	10
00	1	0	0	1
01	1	0	0	1
11	0	1	1	1
10	0	0	1	1

Groupings (circles and rectangles) indicate prime implicants:

- Two vertical circles group the 1s in the first and fourth columns (cd=00 and cd=01).
- A horizontal rectangle groups the 1s in the second and third rows (ab=01 and ab=11).
- A horizontal rectangle groups the 1s in the third and fourth rows (ab=11 and ab=10).
- A small square groups the 1s in the third row (ab=11 and ab=10).

Esercizio #10

Diagram illustrating a Karnaugh map for a function of four variables (a, b, c, d). The map is a 4x4 grid with rows labeled by 'cd' and columns labeled by 'ab'.

Row labels (cd): 00, 01, 11, 10
 Column labels (ab): 00, 01, 11, 10

The map contains the following values:

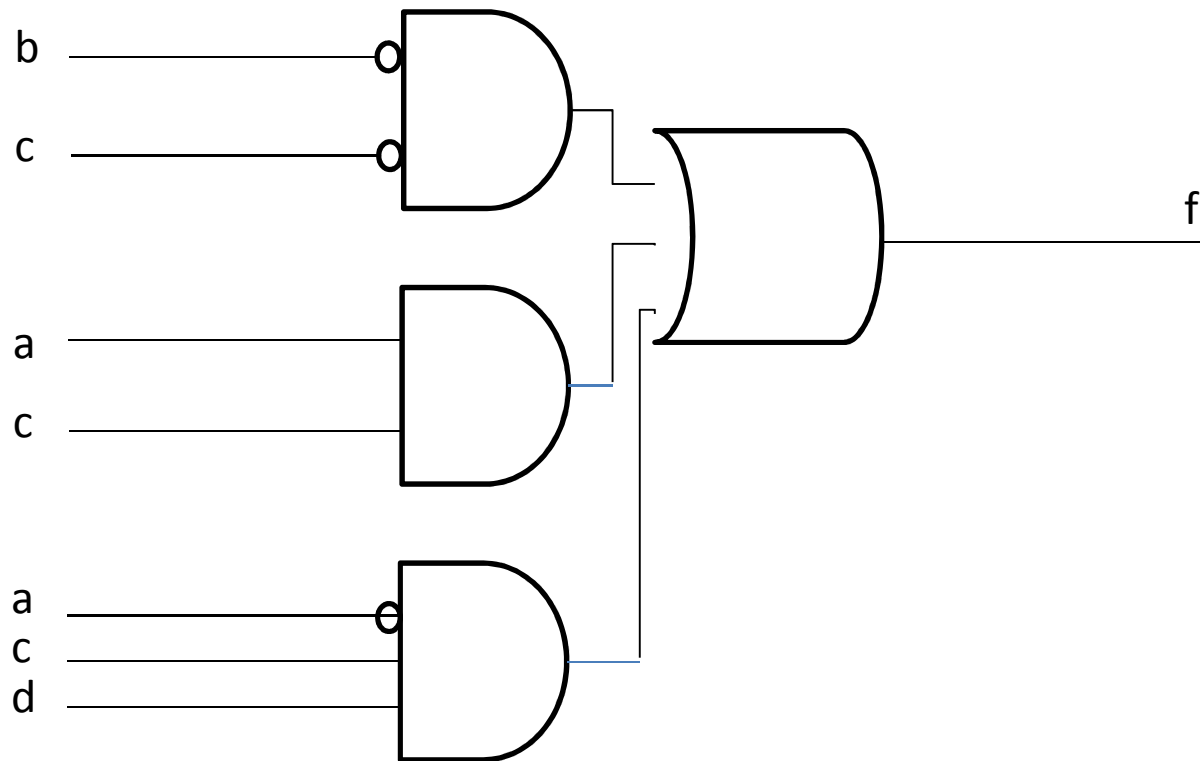
cd \ ab	00	01	11	10
00	1	0	0	1
01	1	0	0	1
11	0	1	1	1
10	0	0	1	1

The map shows four groups of 1s circled, representing the prime implicants used in the simplified function:

- Group 1: Cells (00, 00), (01, 00), (00, 01), (01, 01) - A vertical oval covering the first two columns of the first two rows.
- Group 2: Cells (10, 00), (11, 00), (10, 01), (11, 01) - A vertical oval covering the last two columns of the first two rows.
- Group 3: Cells (01, 11), (11, 11), (01, 10), (11, 10) - A horizontal rounded rectangle covering the middle two columns of the last two rows.
- Group 4: Cells (11, 11), (10, 11), (11, 10), (10, 10) - A horizontal rounded rectangle covering the last two columns of the last two rows.

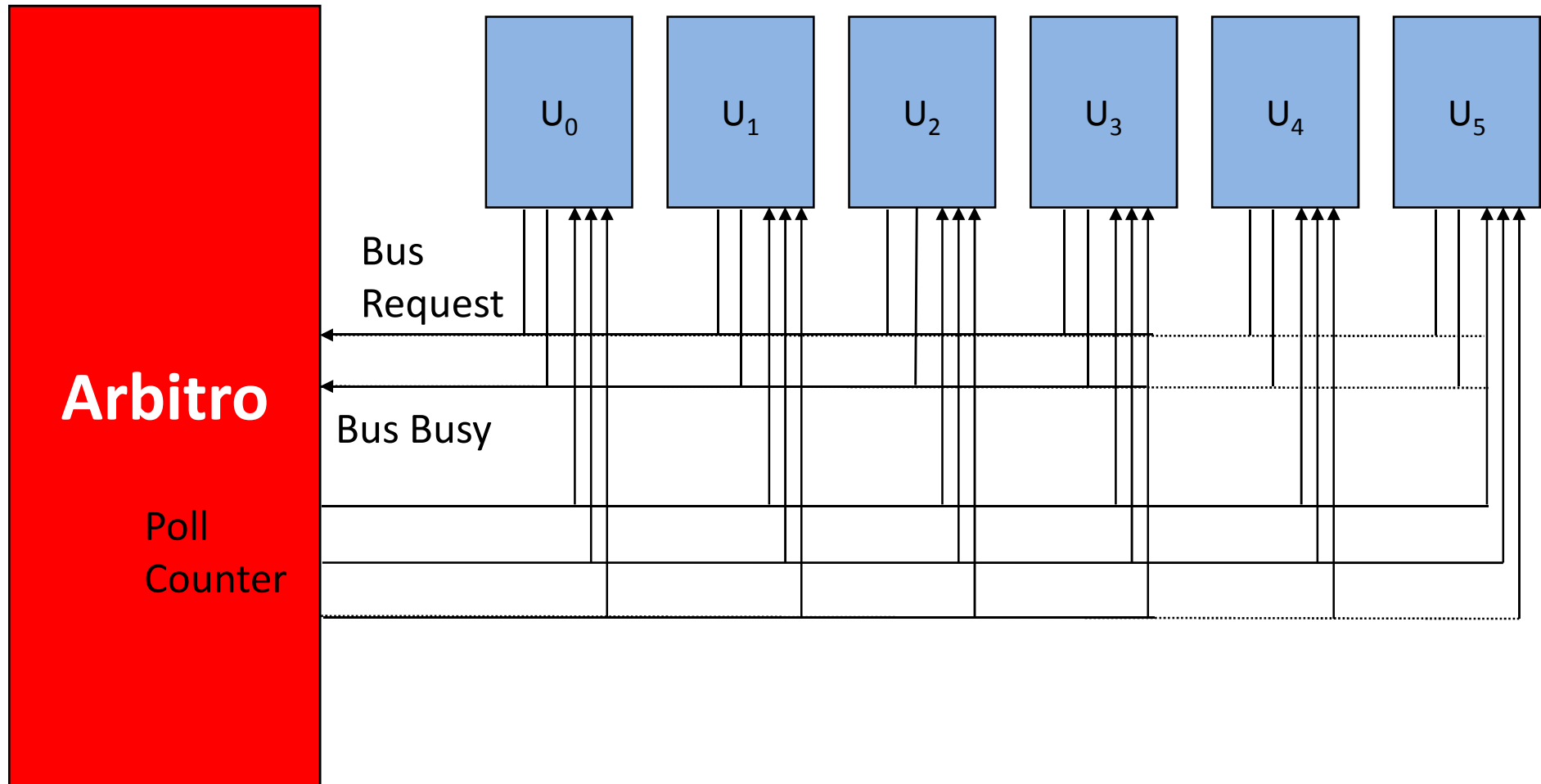
$$f = b'c' + a'cd + ac$$

Esercizio #10

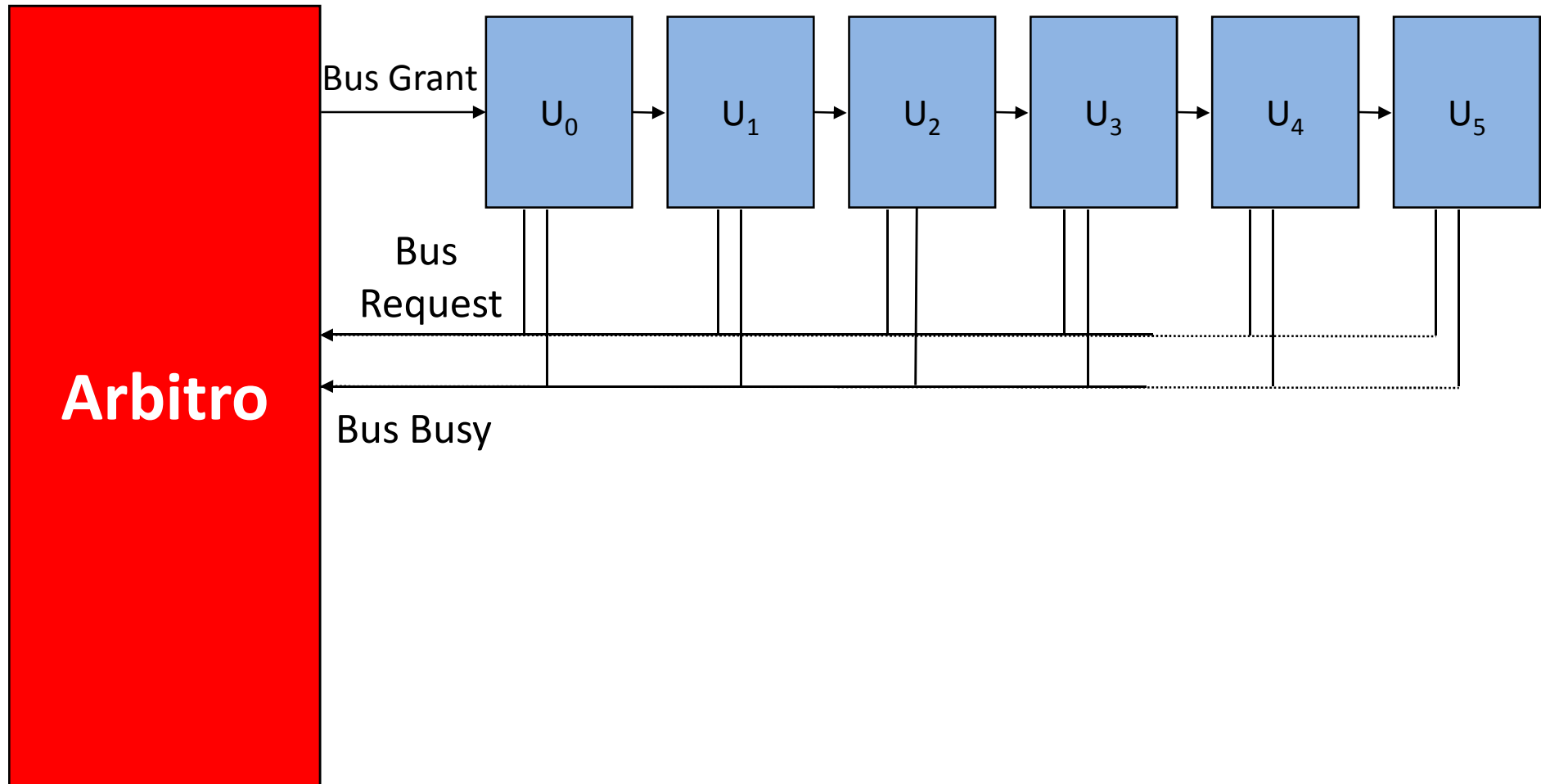


$$f = b'c' + a'cd + ac$$

Esercizio #11



Esercizio #11



Esercizio #12 - A

PRIMA

Insieme 0	60
	100
Insieme 1	25
	61
Insieme 2	50
	122
Insieme 3	31
	35

DOPO

Insieme 0	52
	60
Insieme 1	41
	61
Insieme 2	50
	62
Insieme 3	31
	35

25 (19), 50 (32), 60 (3C), 61 (3D), 100 (64), 122 (7A), 31 (1F), 35 (23) \Rightarrow
41 (29), 50 (32), 52 (34), 60 (3C), 61 (3D), 62 (3E)

Esercizio #12 - B

PRIMA

Insieme 0	60
	100
Insieme 1	25
	61
Insieme 2	50
	122
Insieme 3	31
	35

DOPO

Insieme 0	56
	60
Insieme 1	25
	61
Insieme 2	50
	122
Insieme 3	63
	35

25 (19), 50 (32), 60 (3C), 61 (3D), 100 (64), 122 (7A), 31 (1F), 35 (23) \Rightarrow
40 (28), 52 (34), 56 (38), 60 (3C), 61 (3D), 63 (3F)