

**DANINDYA PUPUT MULIANA PUTRI**  
**L200150123**  
**KELAS C**

Lakukan operasi perkalian secara biner (4 bit) antara

a.  $-12 \times 10 = 0100 \times 1010$

| A   | $Q_0$       | $Q_1$ | M    | Count |
|---|-------------|-------|------|-------|
| 0000  | 0100        | 0     | 1010 | 4     |
| 0000  | 0010        | 0     | 1010 | 4     |
| 0000  | 0001        | 0     | 1010 | 3     |
| $A = A + (-M) = 0000 + (-1010)$<br>$= 0000 + 0110 = 0110$ |             |       |      |       |
| 0110  | 0001        | 0     | 1010 | 3     |
| 0011  | 0000        | 1     | 1010 | 2     |
| $A = A + M = 0011 + 1010 = 1101$                          |             |       |      |       |
| 1101  | 0000        | 1     | 1010 | 2     |
| 1110  | 1000        | 0     | 1010 | 1     |
| 1111  | 0100        | 0     | 1010 | 1     |
| 1111  | 1010        | 0     | 1010 | 1     |
| <b>1111</b>   | <b>1101</b> | 0     | 1010 | 0     |
| Hasil = 1111 1101   |             |       |      |       |

b.  $12 \times -10 = 1100 \times 0110$

| A   | $Q_0$       | $Q_1$ | M    | Count |
|---|-------------|-------|------|-------|
| 0000  | 1100        | 0     | 0110 | 4     |
| 0000  | 0110        | 0     | 0110 | 4     |
| 0000  | 0011        | 0     | 0110 | 3     |
| $A = A + (-M) = 0000 + (-0110)$<br>$= 0000 + 1010 = 1010$ |             |       |      |       |
| 1010  | 0011        | 0     | 0110 | 3     |
| 1101  | 0001        | 1     | 0110 | 2     |
| 1110  | 1000        | 1     | 0110 | 1     |
| $A = A + M = 1110 + 0110 = 10100$                         |             |       |      |       |
| 0100  | 1000        | 1     | 0110 | 1     |
| <b>0010</b>   | <b>0100</b> | 0     | 0110 | 0     |
| Hasil = 0010 0100   |             |       |      |       |

c.  $-12 \times -10 = 0100 \times 0110$

| A   | $Q_0$ | $Q_1$ | M    | Count |
|---|-------|-------|------|-------|
| 0000  | 0100  | 0     | 0110 | 4     |
| 0000  | 0010  | 0     | 0110 | 4     |
| 0000  | 0001  | 0     | 0110 | 3     |
| $A = A + (-M) = 0000 + (-0110)$<br>$= 0000 + 1010 = 1010$ |       |       |      |       |

|                                   |             |   |      |   |
|-----------------------------------|-------------|---|------|---|
| 1010                              | 0001        | 0 | 0110 | 3 |
| 1101                              | 0000        | 1 | 0110 | 2 |
| $A = A + M = 1101 + 0110 = 10011$ |             |   |      |   |
| 0011                              | 0000        | 1 | 0110 | 2 |
| 0001                              | 1000        | 0 | 0110 | 1 |
| 0000                              | 1100        | 0 | 0110 | 1 |
| 0000                              | 0110        | 0 | 0110 | 1 |
| <b>0000</b>                       | <b>0011</b> | 0 | 0110 | 0 |
| Hasil = 0000 0011                 |             |   |      |   |