

|    | $n_3$ | $n_2$ | $n_1$ | $n_0$ | A | B | C | D | E | F | G |
|----|-------|-------|-------|-------|---|---|---|---|---|---|---|
| 0  | 0     | 0     | 0     | 0     | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1  | 0     | 0     | 0     | 1     | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 2  | 0     | 0     | 1     | 0     | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 3  | 0     | 0     | 1     | 1     | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 4  | 0     | 1     | 0     | 0     | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 5  | 0     | 1     | 0     | 1     | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 6  | 0     | 1     | 1     | 0     | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 7  | 0     | 1     | 1     | 1     | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 8  | 1     | 0     | 0     | 0     | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9  | 1     | 0     | 0     | 1     | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 10 | 1     | 0     | 1     | 0     |   |   |   |   |   |   |   |
| 11 | 1     | 0     | 1     | 1     |   |   |   |   |   |   |   |
| 12 | 1     | 1     | 0     | 0     |   |   |   |   |   |   |   |
| 13 | 1     | 1     | 0     | 1     |   |   |   |   |   |   |   |
| 14 | 1     | 1     | 1     | 0     |   |   |   |   |   |   |   |
| 15 | 1     | 1     | 1     | 1     |   |   |   |   |   |   |   |

(1)

(A)

| $n_3 n_2$ | $n_1 n_0$ | 00 | 01 | 11 | 10 |
|-----------|-----------|----|----|----|----|
| 00        | 00        | 0  | 1  | 0  | 0  |
| 01        | 01        | 1  | 0  | 0  | 0  |
| 11        | 11        | 1  | 1  | 1  | 1  |
| 10        | 10        | 0  | 0  | 1  | 1  |

$$A = n_3 n_2 + n_3 n_1 + n_2 \bar{n}_1 \bar{n}_0 + \bar{n}_3 \bar{n}_2 \bar{n}_1 n_0$$

(B)

| $n_3 n_2$ | $n_1 n_0$ | 00 | 01 | 11 | 10 |
|-----------|-----------|----|----|----|----|
| 00        | 00        | 0  | 0  | 0  | 0  |
| 01        | 01        | 0  | 1  | 0  | 1  |
| 11        | 11        | 1  | 1  | 1  | 1  |
| 10        | 10        | 0  | 0  | 1  | 1  |

$$B = n_3 n_2 + n_3 n_1 + \bar{n}_2 n_1 n_0 + n_2 n_1 \bar{n}_0$$

(C)

|   |   |   |   |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 |
| 0 | 0 | 1 | 1 |

$$C = n_3 n_2 + n_3 n_1 + \bar{n}_3 \bar{n}_2 n_1 \bar{n}_0$$

(D)

|   |   |   |   |
|---|---|---|---|
| 0 | 1 | 0 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 |
| 0 | 0 | 1 | 1 |

$$D = n_3 n_2 + n_3 n_1 + n_2 \bar{n}_1 \bar{n}_0 + n_2 n_1 n_0 + \bar{n}_3 \bar{n}_2 \bar{n}_1 n_0$$

(E)

|   |   |   |   |
|---|---|---|---|
| 0 | 1 | 1 | 0 |
| 1 | 1 | 1 | 0 |
| 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 1 |

$$E = n_3 n_2 + n_3 n_1 + \bar{n}_1 n_0 + n_1 n_0 + n_2 \bar{n}_1$$

(F)

|   |   |   |   |
|---|---|---|---|
| 0 | 1 | 1 | 1 |
| 0 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 |
| 0 | 0 | 1 | 1 |

$$F = n_3 n_2 + n_3 n_1 + n_1 n_0 + \bar{n}_3 \bar{n}_2 n_0 + \bar{n}_3 \bar{n}_2 n_1$$

(G)

|   |   |   |   |
|---|---|---|---|
| 1 | 1 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 |
| 0 | 0 | 1 | 1 |

$$G = n_3 n_2 + n_3 n_1 + \bar{n}_3 \bar{n}_2 \bar{n}_1 + n_2 n_1 n_0$$