|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| X0 | X1 | X2 | Y0 | Y1 | Y2 | Y3 | Y4 |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

**Table 1:** Truth Table for the combinational circuit

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AB C | 00 | 01 | 11 | 10 |  |
| 0 | 0 | 0 | 1 | 1 | Y0 = X0 + X1X2 | |
| 1 | 0 | 1 | 1 | 1 |  |

**Table 2:** K-Map for Y0

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AB C | 00 | 01 | 11 | 10 |  |
| 0 | 1 | 1 | 1 | 0 | Y1 = X0’X1’ + X1X2’ + X0X2 |
| 1 | 1 | 0 | 1 | 1 |  |

**Table 3:** K-Map for Y1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AB C | 00 | 01 | 11 | 10 |  |
| 0 | 0 | 1 | 0 | 1 | Y2 = X0’X1’X2 + X0’X1X2’ + X0X1X2 + X0X1’X2’ |
| 1 | 1 | 0 | 1 | 0 |  |

**Table 4:** K-Map for Y2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AB C | 00 | 01 | 11 | 10 |  |
| 0 | 0 | 1 | 1 | 0 | Y3 = X1 |
| 1 | 0 | 1 | 1 | 0 |  |

**Table 5:** K-Map for Y3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AB C | 00 | 01 | 11 | 10 |  |
| 0 | 1 | 1 | 1 | 1 | Y4 = X2’ |
| 1 | 0 | 0 | 0 | 0 |  |

**Table 6:** K-Map for Y4