TD 2 : Logique combinatoire 2(p71)

Exercice 1

1. Table de transcodage

|  |  |  |
| --- | --- | --- |
| N | Code BCD  ABCD | Code 7 segments  a b c d e f g |
| 0 | 0000 | 1 1 1 1 1 1 0 |
| 1 | 0001 | 0 1 1 0 0 0 0 |
| 2 | 0010 | 1 1 0 1 1 0 1 |
| 3 | 0011 | 1 1 1 1 0 0 1 |
| 4 | 0100 | 0 1 1 0 0 1 1 |
| 5 | 0101 | 1 0 1 1 0 1 1 |
| 6 | 0110 | 1 0 1 1 1 1 1 |
| 7 | 0111 | 1 1 1 0 0 0 0 |
| 8 | 1000 | 1 1 1 1 1 1 1 |
| 9 | 1001 | 1 1 1 1 0 1 1 |
| A | 1010 | X X X X X X X |
| B | 1011 |  |
| C | 1100 |  |
| D | 1101 |  |
| E | 1110 |  |
| F | 1111 |  |

1. Fonction logique associée au segment a

AB

CD

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 00 | 1 | 0 | X | 1 |
| 01 | 0 | 1 | X | 1 |
| 11 | 1 | 1 | X | X |
| 10 | 1 | 1 | X | X |

1. Structure de réalisation du transcodeur

A

B

C

D

Exercice 2

Définition d’un MUX :

Fonction à réaliser :

Par identification, on a :

|  |  |  |
| --- | --- | --- |
| a | b | a + b |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

Exercice 3

1. Emetteur

|  |  |  |
| --- | --- | --- |
|  | 0 | 1 |
| 00 | 1 | 0 |
| 01 | 0 | 1 |
| 11 | 1 | 0 |
| 10 | 0 | 1 |

1. Récepteur

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 00 | 01 | 11 | 10 |
| 00 | 1 | 0 | 1 | 0 |
| 01 | 0 | 1 | 0 | 1 |
| 11 | 1 | 0 | 1 | 0 |
| 10 | 0 | 1 | 0 | 1 |

Exercice 4

Remarque : PARITE PARIRE

DECODEUR

= 1

= 1

= 1

= 1