课程：数字逻辑设计

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HW3

2-14

a)

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

b)

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

2-15

a)

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

c)

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

2-16

b)

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

2-17

b)

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

2-19

a)

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

Prime implicants:

Essential implicants:

2-21

a)

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

2-24

a)

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

c)

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

2-34

1. 
2. 

2-35

1. 
2. No.