**تمـــــــــــاريـــــــــــــــــــــــن**

**تمرين 1 :** استخرح المعادلة المنطقية المختزلة.

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

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

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

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

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

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

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

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  abc de | 000 | 0001 | 011 | 111 | 101 | 100 | 110 | 010 |
| 00 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 01 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 11 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  abc de | 000 | 0001 | 011 | 111 | 101 | 100 | 110 | 010 |
| 00 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 01 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 11 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**تمرين 2 :** حول المعادلات المنطقية على شكل جداء ثم على شكل جمع.

$$A=\overbar{a.}b.\left(\overbar{c}.d+e\right)$$

$$B=\overbar{a}+b+\overbar{c}.\overbar{d}$$

$$C=\overbar{a}.\left(b.c+d\right)+e$$

$$D=a+\overbar{b}.(\overbar{c}+d+\overbar{e}.f)$$