# Kod

ORG 100

1. LOP, CLE
2. LDA Y
3. CIR
4. STA Y
5. SZE
6. BUN ONE
7. BUN ZRO
8. ONE, LDA X
9. ADD P
10. STA P

10A CLE

10B ZRO, LDA X

10C CIL

10D STA X

10E ISZ CTR

10F BUN LOP

110 HLT

111 CTR, DEC -8

112 X, HEX 000F

113 Y, HEX 000B

114 P, HEX 0000

END

**Adress Sembol**

LOP 100 X: 0000 1111 -> 0F

ONE 107 Y: 0000 0000 0000 1011 -> 0B

ZRO 10B P: 0000 0000 0000 0000 -> 00

CTR 111 CTR: 1111 1111 1111 0111 ->F7

X 112

Y 113

P 114

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| T4 |  |  |  |  | 0B |  |
| T5 |  |  |  |  |  | 0B |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 1 |  | 05 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 105 |  | 1 |  |  |
| PC= 105 | BUN ONE |  | AR | PC | IR | E | DR | AC |
| T0 | 105 |  |  |  |  |  |
| T1 |  | 106 | 4107 |  |  |  |
| T2 | 107 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 107 |  |  |  |  |
| PC= 107 | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 107 |  |  |  |  |  |
| T1 |  | 108 | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 0F |  |
| T5 |  |  |  |  |  | 0F |
| PC= 108 | ADD P |  | AR | PC | IR | E | DR | AC |
| T0 | 108 |  |  |  |  |  |
| T1 |  | 109 | 1114 |  |  |  |
| T2 | 114 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 0 |  |
| T5 |  |  |  |  |  | 0F |
| PC= 109 | STA P |  | AR | PC | IR | E | DR | AC |
| T0 | 109 |  |  |  |  |  |
| T1 |  | 10A | 3114 |  |  |  |
| T2 | 114 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10A | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 10A |  |  |  |  |  |
| T1 |  | 10B | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 0F |  |
| T5 |  |  |  |  |  | 0F |

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| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 1E |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -8 |  |
| T5 |  |  |  |  | -7 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |

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| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| T4 |  |  |  |  | 05 |  |
| T5 |  |  |  |  |  | 05 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 1 |  | 02 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 105 |  | 1 |  |  |
| PC= 105 | BUN ONE |  | AR | PC | IR | E | DR | AC |
| T0 | 105 |  |  |  |  |  |
| T1 |  | 106 | 4107 |  |  |  |
| T2 | 107 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 107 |  |  |  |  |

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| PC= 107 | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 107 |  |  |  |  |  |
| T1 |  | 108 | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 1E |  |
| T5 |  |  |  |  |  | 1E |
| PC= 108 | ADD P |  | AR | PC | IR | E | DR | AC |
| T0 | 108 |  |  |  |  |  |
| T1 |  | 109 | 1114 |  |  |  |
| T2 | 114 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 0F |  |
| T5 |  |  |  |  |  | 2D |
| PC= 109 | STA P |  | AR | PC | IR | E | DR | AC |
| T0 | 109 |  |  |  |  |  |
| T1 |  | 10A | 3114 |  |  |  |
| T2 | 114 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10A | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 10A |  |  |  |  |  |
| T1 |  | 10B | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 1E |  |
| T5 |  |  |  |  |  | 1E |

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| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 3C |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -7 |  |
| T5 |  |  |  |  | -6 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |

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| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| T4 |  |  |  |  | 02 |  |
| T5 |  |  |  |  |  | 02 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 1 |  | 01 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 106 |  | 0 |  |  |
| PC= 103 | BUN ZRO |  | AR | PC | IR | E | DR | AC |
| T0 | 106 |  |  |  |  |  |
| T1 |  | 107 | 410B |  |  |  |
| T2 | 10B |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |

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| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 3C |  |
| T5 |  |  |  |  |  | 3C |
| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 7B |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -6 |  |
| T5 |  |  |  |  | -5 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |

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| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 01 |  |
| T5 |  |  |  |  |  | 01 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 1 |  | 00 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 105 |  | 1 |  |  |
| PC= 105 | BUN ONE |  | AR | PC | IR | E | DR | AC |
| T0 | 105 |  |  |  |  |  |
| T1 |  | 106 | 4107 |  |  |  |
| T2 | 107 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 107 |  |  |  |  |
| PC= 107 | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 107 |  |  |  |  |  |
| T1 |  | 108 | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 78 |  |
| T5 |  |  |  |  |  | 78 |
| PC= 108 | ADD P |  | AR | PC | IR | E | DR | AC |
| T0 | 108 |  |  |  |  |  |
| T1 |  | 109 | 1114 |  |  |  |
| T2 | 114 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 2D |  |
| T5 |  |  |  |  |  | A5 |
| PC= 109 | STA P |  | AR | PC | IR | E | DR | AC |
| T0 | 109 |  |  |  |  |  |
| T1 |  | 10A | 3114 |  |  |  |
| T2 | 114 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10A | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 10A |  |  |  |  |  |
| T1 |  | 10B | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 78 |  |
| T5 |  |  |  |  |  | 78 |

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| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | F0 |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -5 |  |
| T5 |  |  |  |  | -4 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 0 |  |
| T5 |  |  |  |  |  | 0 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 0 |  | 0 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 106 |  | 0 |  |  |
| PC= 103 | BUN ZRO |  | AR | PC | IR | E | DR | AC |
| T0 | 106 |  |  |  |  |  |
| T1 |  | 107 | 410B |  |  |  |
| T2 | 10B |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |

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| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 00F0 |  |
| T5 |  |  |  |  |  | 00F0 |
| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 01E0 |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -4 |  |
| T5 |  |  |  |  | -3 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 00 |  |
| T5 |  |  |  |  |  | 00 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 0 |  | 00 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 106 |  | 0 |  |  |
| PC= 106 | BUN ZRO |  | AR | PC | IR | E | DR | AC |
| T0 | 106 |  |  |  |  |  |
| T1 |  | 107 | 410B |  |  |  |
| T2 | 10B |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 10B |  |  |  |  |
| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 01E0 |  |
| T5 |  |  |  |  |  | 01E0 |
| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 03C0 |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -3 |  |
| T5 |  |  |  |  | -2 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 00 |  |
| T5 |  |  |  |  |  | 00 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 0 |  | 00 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 106 |  | 0 |  |  |
| PC= 106 | BUN ZRO |  | AR | PC | IR | E | DR | AC |
| T0 | 106 |  |  |  |  |  |
| T1 |  | 107 | 410B |  |  |  |
| T2 | 10B |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 10B |  |  |  |  |
| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 03C0 |  |
| T5 |  |  |  |  |  | 03C0 |
| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 0780 |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -2 |  |
| T5 |  |  |  |  | -1 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PC= 100 | CLE |  | AR | PC | IR | E | DR | AC |
| T0 | 100 |  |  |  |  |  |
| T1 |  | 101 | 7400 |  |  |  |
| T2 | 400 |  |  |  |  |  |
| T3 |  |  |  | 0 |  |  |
| PC= 101 | LDA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 101 |  |  |  |  |  |
| T1 |  | 102 | 2113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 00 |  |
| T5 |  |  |  |  |  | 00 |
| PC= 102 | CIR |  | AR | PC | IR | E | DR | AC |
| T0 | 102 |  |  |  |  |  |
| T1 |  | 103 | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  | 0 |  | 00 |
| PC= 103 | STA Y |  | AR | PC | IR | E | DR | AC |
| T0 | 103 |  |  |  |  |  |
| T1 |  | 104 | 3113 |  |  |  |
| T2 | 113 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 104 | SZE |  | AR | PC | IR | E | DR | AC |
| T0 | 104 |  |  |  |  |  |
| T1 |  | 105 | 7002 |  |  |  |
| T2 | 002 |  |  |  |  |  |
| T3 |  | 106 |  | 0 |  |  |
| PC= 106 | BUN ZRO |  | AR | PC | IR | E | DR | AC |
| T0 | 106 |  |  |  |  |  |
| T1 |  | 107 | 410B |  |  |  |
| T2 | 10B |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 10B |  |  |  |  |
| PC= 10B | LDA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10B |  |  |  |  |  |
| T1 |  | 10C | 2112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | 0780 |  |
| T5 |  |  |  |  |  | 0780 |
| PC= 10C | CIL |  | AR | PC | IR | E | DR | AC |
| T0 | 10C |  |  |  |  |  |
| T1 |  | 10D | 7080 |  |  |  |
| T2 | 080 |  |  |  |  |  |
| T3 |  |  |  |  |  | 0F00 |
| PC= 10D | STA X |  | AR | PC | IR | E | DR | AC |
| T0 | 10D |  |  |  |  |  |
| T1 |  | 10E | 3112 |  |  |  |
| T2 | 112 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |
| PC= 10E | ISZ CTR |  | AR | PC | IR | E | DR | AC |
| T0 | 10E |  |  |  |  |  |
| T1 |  | 10F | 6111 |  |  |  |
| T2 | 111 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  |  |  |  | -1 |  |
| T5 |  |  |  |  | -0 |  |
| T6 |  |  |  |  |  |  |
| PC= 10F | BUN LOP |  | AR | PC | IR | E | DR | AC |
| T0 | 10F |  |  |  |  |  |
| T1 |  | 110 | 4100 |  |  |  |
| T2 | 100 |  |  |  |  |  |
| T3 |  |  |  |  |  |  |
| T4 |  | 100 |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PC= 110 | HLT |  | AR | PC | IR | E | DR | AC |
| T0 | 110 |  |  |  |  |  |
| T1 |  | 111 | 7001 |  |  |  |
| T2 | 001 |  |  |  |  |  |
| T3 | S <- 0 | | | | | |

**Durumlar**

**Başlangıç**

|  |  |  |
| --- | --- | --- |
| X | 0000 1111 | 0F |
| Y | 0000 1011 | 0B |
| P | 0000 0000 | 00 |
| CTR | 1111 0111 +1 | DEC -8 |

**1**

|  |  |  |
| --- | --- | --- |
| X | 0001 1110 | 1E |
| Y | 0000 0101 | 05 |
| P | 0000 1111 | 0F |
| CTR | 1111 1000 +1 | DEC -7 |

**2**

|  |  |  |
| --- | --- | --- |
| X | 0011 1100 | 3C |
| Y | 0000 0010 | 02 |
| P | 0010 1101 | 2D |
| CTR | 1111 1001 +1 | DEC -6 |

**3**

|  |  |  |
| --- | --- | --- |
| X | 0111 1000 | 78 |
| Y | 0000 0001 | 01 |
| P | 0010 1101 | 2D |
| CTR | 1111 1010 +1 | DEC -5 |

**4**

|  |  |  |
| --- | --- | --- |
| X | 1111 0000 | F0 |
| Y | 0000 0000 | 00 |
| P | 1010 0101 | A5 |
| CTR | 1111 1011 +1 | DEC -4 |

**5**

|  |  |  |
| --- | --- | --- |
| X | 0000 0001 1110 0000 | 01E0 |
| Y | 0000 0000 | 00 |
| P | 1010 0101 | A5 |
| CTR | 1111 1100 +1 | DEC -3 |

**6**

|  |  |  |
| --- | --- | --- |
| X | 0000 0011 1100 0000 | 03C |
| Y | 0000 0000 | 00 |
| P | 1010 0101 | A5 |
| CTR | 1111 1101 +1 | DEC -2 |

**7**

|  |  |  |
| --- | --- | --- |
| X | 0000 0111 1000 0000 | 0780 |
| Y | 0000 0000 0000 0000 | 0000 |
| P | 0000 0000 1010 0101 | 00A5 |
| CTR | 1111 1111 1111 1110 +1 | DEC -1 |

**6**

|  |  |  |
| --- | --- | --- |
| X | 0000 1111 0000 0000 | 0F00 |
| Y | 0000 0000 0000 0000 | 0000 |
| P | 0000 0000 1010 0101 | 00A5 |
| CTR | 0000 0000 0000 0000 | 0EC0 |