|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.NO | **MNEMONIC**  (Instruction name) | **SYNTAX**  (Language Structure) | **SEMANATICS**  (Meaning) | **CODING**  (Machine Coding) | | | | | | | | | | | | | | | | **EXAMPLE** |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 1 | ADD | ADD Rd,Rs,Rt | Rd ← Rs + Rt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Rt | | | Rs | | | Rd | | |  |
| 2 | ADDI | ADDI Rd,Rs,imm4 | Rd ← Rs+ imm4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Imm4 | | | Rs | | | Rd | | |  |
| 3 | ADDC | ADDC Rd,Rs,Rt | Rd ← Rs + Rt | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Rt | | | Rs | | | Rd | | |  |
| 4 | SUB | SUB Rd,Rs,Rt | Rd ← Rs - Rt | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Rt | | | Rs | | | Rd | | |  |
| 5 | SUBI | SUBI Rd,Rs,imm4 | Rd ← Rs-imm4 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | Imm4 | | | Rs | | | Rd | | |  |
| 6 | SUBC | SUBC Rd,Rs,Rt | Rd ← Rs - Rt | 0 | 0 | 0 | 0 | 1 | 1 | 1 | Rt | | | Rs | | | Rd | | |  |
| 7 | AND | AND Rd,Rs | Rd ← Rs . Rt | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Rs | | | Rd | | |  |
| 8 | OR | OR Rd,Rs | Rd ← Rs + Rt | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | Rs | | | Rd | | |  |
| 9 | XOR | XOR Rd,Rs | Rd ← Rs XOR Rt | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | Rs | | | Rd | | |  |
| 10 | LW | LW Rd[Rb,Ro] | Rd ← [Rb + Ro] | 0 | 0 | 0 | 1 | 1 | 1 | 0 | Ro | | | Rb | | | Rd | | |  |
| 11 | SW | SW Rd[Rb,Ro] | Rd ← [Rb + Ro] | 0 | 0 | 0 | 1 | 1 | 1 | 1 | Ro | | | Rb | | | Rd | | |  |
| 12 | BNE | BNE LABEL | BNE LABEL | 0 | 0 | 1 | 0 | 0 | Rs | | | Rd | | | OFFSET | | | | |  |
| 13 | BNZ | BNZ LABEL | BNZ LABEL | 0 | 0 | 1 | 0 | 1 | Rs | | | Rd | | | OFFSET | | | | |  |
| 14 | LSL | LSL Rd,Rs,#OFFSET | Rd= Rd<<Rs | 0 | 0 | 1 | 1 | 0 | Rs | | | Rd | | | OFFSET | | | | |  |
| 15 | LSR | LSR Rd,Rs,#OFFSET | Rd= Rd>>Rs | 0 | 0 | 1 | 1 | 1 | Rs | | | Rd | | | OFFSET | | | | |  |
| 16 | ASR | ASR Rd,Rs,#OFFSET | Rd= Rd ASR Rs | 0 | 1 | 0 | 0 | 0 | Rs | | | Rd | | | OFFSET | | | | |  |

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