

# Nikhil Microcontroller

Monday, 16 September 2019

9:14 AM

1. assembler - instructions

2.  $ATMEGA8 \rightarrow 8kB$   
 $ATMEGA16 \rightarrow 16kB, 0x0000$

3. 2-byte instruction

4. RISC

5. (a)  $LDI R16, 0x25 \rightarrow$  produce opcode  
(b)  $ADD R23, R19 \rightarrow$  produce opcode  
(c)  $.ORG \rightarrow$  directive  
(d)  $JMP HERE \rightarrow$  opcode

2.

1.

$R20 = 5$   
 $R21 = 2$

$ADD R20, R21 \Rightarrow R20 = 7$

$ADD R20, R21 \Rightarrow R20 = 9$  12-

2.

$PORTB = PORTB \wedge 0xFF;$

3.

$DDRB = 0x00;$  [input]  
 $DDRC = 0xFF;$  output

$PORTC = PINB;$

4.

$LDI R20, 4$

$DEC R20 \quad Z=0$

$DEC R20 \quad Z=0$

$DEC R20 \quad Z=0$

$DEC R20 \quad Z=1$