SNS COLLEGE OF ENGINEERING

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Sub: Microcontroller Programming And Interfacing
Subcode:23ECB202
Unit-III

PIC PROGRAMMING USING C/ Examples

Program

Run the following program on your simulator and examine the results.

Solution:

```
#include <P18F458.h>
void main (void)
  {
    TRISB = 0;                  //make Ports B, C,
    TRISC = 0;                  //and D output ports
    TRISD = 0;
    PORTB = 0x35 & 0x0F;        //ANDing
    PORTC = 0x04 | 0x68;        //ORing
    PORTD = 0x54 ^ 0x78;        //XORing
    PORTB = ~0x55;              //inverting
    PORTC = 0x9A >> 3;          //shifting right 3 times
    PORTD = 0x77 >> 4;          //shifting right 4 times
    PORTB = 0x6 << 4;           //shifting left 4 times
    while(1);                   //stay here forever
  }
```

Program

Write a C18 program to toggle all the bits of Port B and Port C continuously with a 250 ms delay. Use the inverting operator.

Solution:

```
#include <P18F458.h>
void MSDelay(unsigned int);
void main(void)
  {
    TRISB = 0;
    TRISC = 0;                  //make Ports B and C output
    PORTB = 0x55;
    PORTC = 0xAA;
    while(1)
      {
        PORTB = ~PORTB;
        PORTC = ~PORTC;
        MSDelay(250);
      }
  }

void MSDelay(unsigned int itime)
  {
    unsigned int i;
    unsigned char j;
    for(i=0;i<itime;i++)
      for(j=0;j<165;j++);
  }
```

Program

Rewrite the C18 program to toggle all the bits of Port B, Port C, and Port D continuously with a 250 ms delay. Use the EX-OR operator.

Solution:

```
#include <P18F458.h>
void MSDelay(unsigned int);
void main(void)
  {
    TRISB = 0;
    TRISC = 0;
    TRISD = 0;                  //make Ports B,C, and D output
    PORTB=0x55;
    PORTC=0x55;
    PORTD=0x55;
    while(1)
      {
        PORTB=PORTB^0xFF;
        PORTC=PORTC^0xFF;
        PORTD=PORTD^0xFF;
        MSDelay(250);
      }
  }

void MSDelay(unsigned int itime)
  {
    unsigned int i;
    unsigned char j;
    for(i=0;i<itime;i++)
      for(j=0;j<165;j++);
  }
```

Program

Rewrite the C18 program to get bit RB0 and send it to RC7 after inverting it.

Solution:

```
#include <P18F4550.h>
#define inbit PORTBbits.RB0
#define outbit PORTCbits.RC7
void main(void)
  {
    TRISBbits.TRISB0 = 1;          //make PORTB.0 an input
    TRISCbits.TRISC7 = 0;          //make PORTC.7 an output
    while(1)
      {
        outbit = ~inbit;           //get a bit from RB0
      }
  }
```