

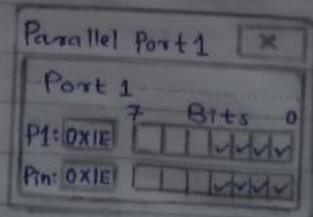
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ROLL NO: (46) SYBSC-IT  
SEAT NO: SSIT-1207

### ES ASSIGNMENT

Q.1. Configure time control registers of 8051 and develop a program to generate given time delay.

```
→ Timedelaypl.c
#include <reg51.h>
void delay (int time);
void main()
{
    P1 = 00000000; // Initialize Port1 as Output
    while(1)
    {
        P1++; // Increment Port1 (Binary Counter) delay(10);
    }
}
void delay(int time)
{
    int i, j;
    for(i=0; i<=time; i++)
        for(j=0; j<=23; j++);
}
```

Output:



Q.2. PORT I/O: use one of the 4 ports of 8051 for output interfaced to 8 LED's simulate binary counter (8 bits) on LED's

→ Ledg. c

```
#include <reg51.h>
void main(void)
{
    P1 = 00;
    P2 = 0;
    for(;;)
    {
        P1++;
        P2++;
    }
}
```

Output:

Parallel Port 1

Port 1 7 Bits 0

P1: 0x34

Pins: 0x34

Parallel Port 2

Port 2

Pins: 0x6F

Bits

7 0

✓ ✓ ✓ ✓ ✓ ✓ ✓

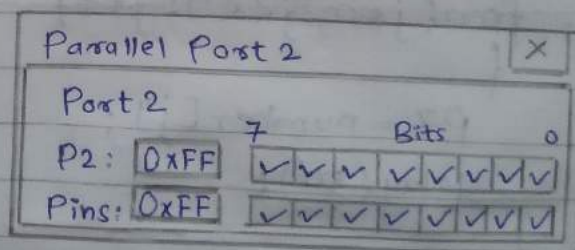
✓ ✓ ✓ ✓ ✓ ✓ ✓

Q.3. To interface 8 LED's at IP-OP port and create different patterns.

→ Toggle led.c

```
#include <reg51.h>
void main()
{
    Unsigned char x, y;
    Unsigned int i;
    P1 = 0x00;
    while(1)
    {
        x = 0x01
        for (y=0; y<8; y++)
        {
            P1 = x;
            for (i=1; i<60000; i++)
                x = x<<1
        }
    }
}
```

Output:





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## ES ASSIGNMENT

①

Q.1. Configure time control register of 8051 and develop a program to generate given time delay.

→

Timedelaypl.c

```
#include <reg51.h>
```

```
void delay (int time);
```

```
void main()
```

```
{
```

```
    P1 = 00000000; // Initialize Port1 as Output
```

```
    while(1)
```

```
    {
```

```
        P1++; // Increment Port1 (Binary Counter) delay(10);
```

```
    }
```

```
}
```

```
void delay(int time)
```

```
{
```

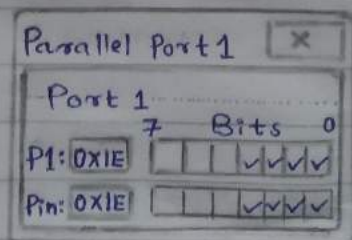
```
    int i, j;
```

```
    for(i=0; i<=time; i++)
```

```
        for(j=0; j<=23; j++)
```

```
    }
```

Output:



(2)

Q.2. PORT I/O: use one of the 4 ports of 8051 for output interfaced to 8 LED's simulate binary counter (8 bits) on LED's

→ Led8.c

```
#include <reg51.h>
void main(void)
{
    P1 = 00;
    P2 = 0;
    for(;;)
    {
        P1++;
        P2++;
    }
}
```

Output:

Parallel Port 1		Parallel Port 2	
Port1		Port 2	
P1: 0x34		P2: 0x6F	
Pins: 0x34		Pins: 0x6F	

(3)

Q. 3. To interface 8 LED's at IP-OP port and create different patterns.

→ Toggle led.c

```
#include <reg51.h>
void main()
{
    Unsigned char x, y;
    Unsigned int i;
    P1 = 0x00;
    while(1)
    {
        x = 0x01
        for (y=0; y<8; y++)
        {
            P1 = x;
            for (i=1; i<60000; i++)
                x = x<<1
        }
    }
}
```

Output:

Parallel Port 2									
Port 2									
		7		Bits		0			
P2:	0xFF	✓	✓	✓	✓	✓	✓	✓	✓
Pins:	0xFF	✓	✓	✓	✓	✓	✓	✓	✓



(4)

Q. 4. To demonstrate interfacing of seven segment LED display and generate counting from 0-99 with fixed time delay

```
→ #include <reg51.h>
void delay(unsigned int ms)
{
    unsigned int i, j;
    for(i=0; i<ms; i++)
        for(j=0; j<=1275; j++);
}
void main(void)
{
    char number[10] = {0x3F, 0x06, 0x5B, 0x4F,
                       0x66, 0x6D, 0x7D, 0x07, 0x7F, 0x6F};
    int i, j;
    P2 = 0x00;
    P3 = 0x00;
    while(1)
    {
        for(i=0; i<=9; i++)
        {
            P2 = number[i];
            for(j=0; j<=9; j++)
            {
                P3 = number[j];
                delay(50);
            }
        }
    }
}
```

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Output:

Parallel Port 2		X
Port 2	7	Bits 0
P2: 0x00	<input type="checkbox"/>	<input type="checkbox"/>
Pins: 0x00	<input type="checkbox"/>	<input type="checkbox"/>



(6)

Q.5. Interface 8051 with D/A converter and generate square wave of given frequency on oscilloscope.

→ Triangle wave.c

```
#include <reg51.h>
void main()
{
    P1 = 0x00;
    while(1)
    {
        do
        {
            P1 += 0x05;
        } while (P1 < 0xFF);
        do
        {
            P1 -= 0x05;
        } while (P1 > 0x00);
    }
}
```

Output:

