NAME: BHATKAR SAALIM RASHID
ROLL NO: (46)   SYBSC-IT
SEAT NO: SSIT-1207
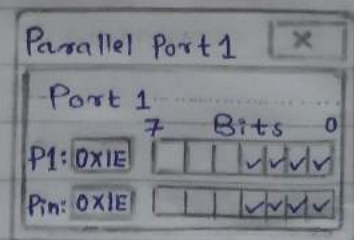
ES ASSIGNMENT   ①

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++;  // IncrementPort1 (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

→ Led2.c

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

Output:

Parallel Port 1	☒

Port1
　　　　7　　Bits　　0
P1: 0x34 ☐☐☑☑☐☑☐☐
Pins:0x34 ☐☐☑☑☐☑☐☐

Parallel Port 2	☒

Port 2
　　　　7　　Bits　　0
P2: 0x6A ☐☑☑☐☑☑☑☑
Pins:0x6A ☐☑☑☐☑☑☑☑

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

→
```c
#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);
    }
  }
}
}
```

Output:

Parallel Port 2   ☒

Port 2		7	Bits	0
P2: 0x00				
Pins: 0x00				

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

```c
#include<reg 51.h>
void main()
{
P1 = 0x00
while (1)
{
do
{
P1 += 0x05;
} while (P1 < 0xFF);
do
{
P1 -= 0x05
} while (P1 > 0x00);
}
}
```

Output:

| 0s | 134926 | 11·34974 | 11·34974 | | 11·36026 | | 11·37126 |