Lab - 06 - Interfacing to ARM microcontroller.

① Write a program to display an 8-bit ?

Ans

```
#include <LPC17xx.h>
int main(void){
    unsigned int j;
    unsigned long LED;
    LPC_PINCON -> PINSEL &= 0xFF0000FF;
    LPC_GPIO0 -> FIODIR |= 0x000000FF;
    while(1){
        for(LED=0; LED<=255; LED++){
            LPC_GPIO0 -> FIOPIN = LED<<4;
            for(j=0; j<10000000; j++);
        }
    }
}
```

output:

	LED							
D0:	0	0	0	0	0	0	0	0
D1:	0	0	0	0	0	0	0	1
D2:	0	0	0	0	0	0	1	0
D3:	0	0	0	0	0	0	1	1
:								
:								
D255	1	1	1	1	1	1	1	1

URBAN EDGE

(2) Write a C program to read a key and display an 8 bit up-down counter.

Ans

```
#include <LPC17XX.h>
int main(void){
    unsigned int j;
    unsigned long LED;=10;
    LPC_PINCON → PINSEL & = 0x FF000000FF;
    LPC_GPIO0 → FIODIR & = 0xFFFFEFFF;
    while (1){
        if (LPC_GPIO2 → FIOPIN & 1>>12 ){
            for (LED; LED>0; LED--){
                LPC_GPIO → FIOPIN = LED<<4;
                for(j=0; j<100000; j++);
            } }   if(!(LPC_GPIO2→FIOPIN & 1<<12)) break;
        else {
            for (LED; LED<<=10; LED++){
                LPC_GPIO0 → FIOPIN = LED<<4;
                for(j=0; j<100000; j++);
                if(LPC_GPIO2 → FIOPIN & 1<<12) break;
            }
        }
    }
```

Output :

switch → not held	switch → held
0000 1010	0000 0000
0000 1001	0000 0001
0000 1000	0000 0010
0000 0111	0000 0011
0000 0110	0000 0100
0000 0101	0000 0101
:	:
0000 0001	0000 1001
0000 0000	0000 1010

URBAN EDGE

(3) Write a program to simulate an 8 bit ring counter.

My

```
#include <LPC17xx.h>
unsigned int j;
unsigned int c=1;
unsigned long LED = 0x00000010;
int main(void){
    SystemInit();
    SystemCoreClockUpdate();
    LPC_PINCON->PINSEL0 &= 0xFF0000FF;
    LPC_GPIO->FIODIR |= 0x00000FF0;
    LPC_GPIO2->FIODIR &= 0xFFFFFFFE;
    while(1){
      if(!(LPC_GPIO2->FIOPIN & 1<<12)){
        for(LED=0; LED<8; LED++){
          LPC_GPIO2->FIOPIN = c<<4;
          for(j=0; j<100000; j++);
          c = c<<1;
        }
      }
      c=1;
    }
```

Output LED

: 00000001
00000010
00000100
00001000
00010000
00100000
01000000
10000000

switch pressed restart

Go
25/03