EXP NO: 4 **DATE:**

ARITHMETIC OPERATION USING 8051

AIM:

To Write Basic and arithmetic Programs Using Embedded C.

APPARATUS REQUIRED: S/W : KEIL µ5 IDE

PROGRAM:

```
# include<reg51.h>

void main(void)
{

unsigned char x, y, z;

        x  =  0x12;

        y  =  0x34;

        P0 = 0x00;

        z = x + y;

        P0 = z;
while (1);
        }
```

```
# include<reg51.h>

void main(void)
{

unsigned char x, y, z;

        x  =  0x12;

        y  =  0x34;

        P0 = 0x00;

        z = x - y;

        P0 = z;
while (1);
        }
```

```
# include<reg51.h>

void main(void)
{

unsigned char x, y, z;

        x  =  0x12;

        y  =  0x34;

        P0 = 0x00;

        z = x * y;

        P0 = z;
while (1);
        }
```

```
# include<reg51.h>

void main(void)
{

unsigned char x, y, z;

        x  =  0x12;

        y  =  0x34;

        P0 = 0x00;

        z = x /y;

        P0 = z;
while (1);
        }
```

Result: Thus the programs to perform the arithmetic operations such as additions, subtractions and multiplication have been written and executed in Embedded C.

EXP NO: 5 **DATE:**

PORT OPERATION OF 8051

AIM:

To write and perform the port operation of 8051.

APPARATUS REQUIRED: S/W : KEIL µ5 IDE

PROGRAM:

1. An embedded C program to load a number into Accumulator.

```
#include<reg51.>
void main( )
{           Acc = 0x25;
}
```

2. Write a program to load three numbers into Accumulator and send them to port 1

```
#include<reg51.h>
void main( )
{
    Acc = 0x25;
    P1 = Acc;
    Acc = 0x46;
    P1 = Acc;
    Acc = 0x92;
    P1 = Acc;
}
```

3. Write an 8051 C program to toggle all the bits of P1 continuously.

```
//Toggle P1 forever
#include <reg51.h>
void main( )
{
  for ( ;  ;  ) // while(1)
        {
              P1=0 x 55;
              P1=0 x AA;
        }
}
```

Result: Thus, the program to perform port operation for 8051 suing embedded C has been written and executed.

EXP NO: 6 **DATE:**

Programming using on-Chip ports in 8051.

AIM:

To Write a program to toggle all the bits of P0, P1,and P2 every 1/4 of a second

Apparatus Required: S/W : KEIL µ5 IDE

Program:

```
ORG 00h
SJMP MAIN
ORG 30H
MAIN:
BACK: MOV A,#55H
MOV  P0,A
MOV  P1,A
MOV P2,A
ACALL QSDELAY          ;Quarter of a second
MOV A,#0AAH
MOV P0,A
MOV P1,A
MOV P2,A
ACALL QSDELAY
SJMP BACK
QSDELAY:
MOV R5,#11
H3: MOV R4,#248
H2: MOV R3,#255
H1: DJNZ R3,H1 ;4 MC for DS89C4x0
DJNZ R4,H2
DJNZ R5,H3
RET
END
```

Result:

EXP NO: 7 **DATE:**

PROGRAMMING USING SERIAL PORTS IN 8051

AIM:

To send the data serially with the desired baud rate. (In assembly)

Apparatus Required: S/W : KEIL µ5 IDE

Program:

```
        ORG 00h
        SJMP MAIN
        ORG 30H
        MAIN:
        MOV TMOD,#20H    ;timer 1,mode 2(auto reload)
        MOV TH1,#-3      ;9600 baud rate
        MOV SCON,#50H      ;8-bit, 1 stop, REN enabled
        SETB TR1           ;start timer 1
AGAIN: MOV A,#'E'        ;transfer "E"
        ACALL TRANS
        MOV A,#'C'       ;transfer "C"
        ACALL TRANS
        MOV A,#'E'       ;transfer "E"
        ACALL TRANS
        SJMP AGAIN       ;keep doing it
        ;serial data transfer subroutine
        TRANS: MOV SBUF,A ;load SBUF
        HERE: JNB TI,HERE ;wait for the last bit
        CLR TI ;get ready for next byte
        RET
        END
```

Result: