List of Experiments:

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7. **8051 Microcontrollers LAB Manual**

8. **Subject:** Microprocessors and Microcontrollers
9.

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1. Addition of two numbers

```
MOV 14H, #14H
MOV a, 14H
SETB C
mov b, #44H
addc a,  b
end
```

Result: 59H

1. Addition programming

```
mov 50H, #22H
mov r0, #50H
MOV 14H, @r0
MOV a, 14H
SETB C
mov b, #44H
addc a,  b
end
```

Result: R0 = 50H and a = 67H

2. BCD addition of two numbers

```
mov 50H, #47H
mov r0, #50H
MOV 14H, @r0
MOV a, 14H
mov b, #13H
add a, b
DA A
End
```

Result: a = 60

3. Multiplication of two numbers

```
mov 50H, #09H
mov r0, #50H
MOV 14H, @r0
MOV a, 14H
mov b, #03H
MUL  ab
End
```

Result: 1bH

4. LED ON and OFF with delay using DJNZ instruction

```
Main: MOV p0, #01010101B
CALL Delay1
MOV p0, #10101010B
CALL Delay2
JMP Main
Delay1: MOV r0, #255
Here1: DJNZ r0, Here1
RET
Delay2: MOV r1, #255
Here: DJNZ r1, Here
RET
end
```

Result: P0: 01010101B

P0: 10101010B

5. LED ON and OFF with delay using Timers

```
MAIN: MOV P1, #55H
ACALL DELAY1
MOV P1, #0AAH
ACALL DELAY2
SJMP MAIN
DELAY1: Mov TMOD, #10H
MOV TCON, #00H
MOV TH1, #01FH
MOV TL1, #0CEH
SETB TR1
HERE: JNB TF1, HERE
CLR TR1
CLR TF1
RET
DELAY2: Mov TMOD, #00H
MOV TCON, #00H
MOV TH0, #01FH
MOV TL0, #1EH
SETB TR0
HERE1: JNB TF0, HERE1
CLR TR0
CLR TF0
RET
END
```

Result: P1: 01010101B

P1: 10101010B

6. Serial communication

```
MOV TMOD, #20H
MOV TH1, #-6
MOV SCON, #50H
SETB TR1
Again: MOV SBUF, #"V"
Here: JNB TI, Here
CLR TI
MOV SBUF, #"I"
Here1: JNB TI, Here1
CLR TI
MOV SBUF, #"T"
Here2: JNB TI, Here2
CLR TI
MOV SBUF, #"B"
Here3: JNB TI, Here3
CLR TI
MOV SBUF, #"H"
Here4: JNB TI, Here4
CLR TI
MOV SBUF, #"O"
Here5: JNB TI, Here5
CLR TI
SJMP Again
END
```

Result: VITBHO