// sample programs

1.Program to copy a block of 8 bytes of data to RAM locations starting at 50h from locations 30h

```
        MOV R0 ,#30h
        MOV  R1,#50h
         MOV R3,8
LABEL MOVA,@R0
          MOV @R1,A
           INC R0
           INC R1
           DJNZ R3 LABEL
END
```

2. To perform 16 BIT ADDITION

```
MOV DPTR,#2040H
MOV A,#22H
MOV B,#42H
ADDC A,DPH
MOV DPH,A
MOV A,B
ADDC A,DPL
MOV DPL,A
END
```

3. To perform 16 BIT BCD ADDITION

```
MOV DPTR,#2040H
MOV A,#22H
MOV B,#42H
ADDC A,DPL
DA A
MOV DPL,A
MOV A,B
```

```
ADDC A,DPH
DA A
MOV DPH,A
END
```

4. SIMPLE 8 bit arithmetic operations

ADDITION

```
MOV A,#10H
MOV B,#10H
ADD A,B
END
```

DIVISION

```
MOV A,#02H
MOV B,#03H
DIV AB
END
```

5. To perform FACTORIAL

```
MOV DPTR,#1000H
MOVX A,@DPTR
MOV R1,A
MOV A,#01H
LOOP:MOV B,R1
MUL AB
DJNZ R1,LOOP
MOVX @DPTR,A
END
```

FACTORIAL STEP BY STEP

```
MOV DPTR,#1000H
MOVX A,@DPTR
MOV R1,A
MOV A,#01H
LOOP:MOV B,R1
MUL AB
MOVX @DPTR,A
INC DPTR
DJNZ R1,LOOP
END
```

6.To perform Fibonacci series

```
MOV DPTR,#1000H
MOV R0,#09H
MOV A,#00H
MOV B,#01H
DEC R0
DEC R0
MOVX @DPTR, A
INC DPTR
MOV A,B
MOVX @DPTR,A
MOV A,#00H
MOV B,#01H
LOOP:ADD A,B
INC DPTR
MOVX @DPTR,A
XCH A,B
DJNZ R0,LOOP
END
```

7. To find MAXIMUM NUMBER

```
MOV DPTR,#1000H
MOV R1,#05H
MOV B,#00H
AGAIN: MOVX A,@DPTR
CJNE A,B,LABEL1
SJMP LABEL2
LABEL1:JC LABEL2
MOV B,A
LABEL2:INC DPTR
DJNZ R1,AGAIN
END
```

8. To perform MESSAGE PASSING

```
MOV TMOD,#20H
MOV TH1,#0faH
MOV SCON,#050H
SETB TR1
START: MOV A,#'M'
ACALL F1
MOV A,#'e'
ACALL F1
MOV A,#'s'
ACALL F1
MOV A,#'s'
ACALL F1
MOV A,#'a'
ACALL F1
MOV A,#'g'
ACALL F1
MOV A,#'e'
```

```
ACALL F1
SJMP START

F1: MOV SBUF,A
HERE:JNB TI,HERE
CLR TI
RET
END
```

PORT NUMBER

```
MOV P0,#10H
MOV P1,#20H
MOV A,P0
ANL A,P1
MOV P3,A
```

RECEIVING

```
MOV TMOD,#00H
MOV SCON,#50H
MOV TH1,#0FEH
SETB TR1
HERE: JNB RI, HERE
MOV A,SBUF
MOV P3,A
CLR RI
SJMP HERE
END
```

SERIAL TRANSMISSION

```
MOV TMOD,#20H
MOV TH1,#0F3H
```

```
MOV SCON,#50H
SETB TR1
AGAIN:MOV SBUF,#'A'
LOOP:JNB TI,LOOP
CLR TI
SJMP AGAIN
END
```

9. To perform SORTING

```
MOV R6, #07H  ; EXTERNAL COUNTER
START :       MOV R7, #07H  ; INTERNAL COUNTER
              MOV R0, #30H  ; INTERNAL MEMORY ADDRESS
              MOV A, #00H   ; CLEAR ACCUMULATOR
; CY = 0 A>VAL
; CY = 1 A<VAL
BACK :  MOV A, @R0    ;
              INC R0  ;
              CJNE A, @R0, CARRY ;
              SJMP DECREMENTC     ;
CARRY :       JC DECREMENTC       ;
              MOV B, @R0    ;
              MOV @R0, A    ;
              DEC R0        ;
              MOV A, B      ;
              MOV @R0, A    ;
DECREMENTC :  INC R0  ;
              DJNZ R7, BACK  ;
              DJNZ R6, START ;
              END
```

10. SORTING

```
START : MOV R1,#05H  /* R1 declared as a pass counter*/
AGAIN : MOV A,R1
        MOV R2,A
        MOV R0,#30H
        MOV A,@R0
  UP : INC R0
        MOV B,@R0
        CLR C
        SUBB A,B
        JC SKIP
        MOV B,@R0
        DEC R0
        MOV A,@R0
        MOV @R0,B
        INC R0
        MOV @R0,A
 SKIP : DJNZ R2,UP
        DJNZ R1,AGAIN
 STOP : SJMP STOP
```

Exercise

1)Write a program to copy the values 55h into RAM memory location 40h to 45h using

a) direct addressing mode b)register addressing mode c) with loop

2. program to add all the BCD numbers stored in 50h to 55h in RAM,Let the numbers be 43h,54h,65,22,34 the result must be in BCD

3. Write a program to subtract 19566h to 22246 and save the BCD result to 50h

4. write a program to add all the digits of your ID and save the result in R4 the result must be in the form BCD

5 write a program to find the minimum among the given numbers.