COECC08-MICROPROCESSORS AND MICROCONTROLLERS

PRACTICAL FILE

MADE BY: AMOGH GARG
ROLL NUMBER:2020UCO1688
NETAJI SUBAS UNIVERSITY OF TECHNOLOGY, NEW DELHI

INDEX

PROGRAM-1

CODE: Generate number of Fibonacci series.

```
LXI H,3050H
MVI C,08
MVI B,00
MVI D,01
MOV M, B
INX H
MOV M, D
JUMP: MOV A, B
ADD D
MOV B, D
MOV D, A
INX H
MOV M, A
DCR C
JNZ JUMP
HLT
```

PROGRAM-2

CODE: Clear all flags without using any data transfer instruction.

```
START: NOP
XRA A
INR A
STC
CMC
HLT
```

PROGRAM-3

CODE: Program to search for a number in a list.

```
LXI H,2050H;                    //Loads number to be found
MOV B, M;                       //Stores it in B
LXI H,2000H;                    //Goes to starting of the list
MVI C,0AH;                      //Counter for list traversal
MVI D,05H;                      //Stores number of elements in array
LOOP: MOV A, M;
CMP B;
JZ BREAK;                       //Jumps if number found
INX H;                          //If not jumps to next num
DCR D;                          //Decrements counter
JNZ LOOP;                       //Goes back to comparing
LXI H,2051H;                    //Loads memory where o/p is to be stored
MVI M,00H;                      //Stores zero if not found
HLT;
BREAK: LXI H,2051H;
MVI M,01H;                      //Stores 1 if found
HLT;
```

PROGRAM-4

CODE: Program to sort a list.

```
START: NOP;
LXI H, 2000H;                    //This location stores size of list
MVI D,00H;
MOV C, M;
DCR C;
INX H;                           //List begins at 2001
COMPARE: MOV A, M;
INX H;
CMP M;
JC NEXT;                         //If first num smaller proceed to next
JZ NEXT;                         //If equal proceed to next
MOV B, M;                        //If not then swap
MOV M, A;
DCX H;
MOV M, B;
INX H;
MVI D,01H;
NEXT: DCR C;                     //Decrement after every iteration
JNZ COMPARE;
MOV A, D;
CPI 01H;
JZ START;
HLT;
```

PROGRAM-5

CODE: Program to copy a list from one part of the memory to another.

```
START: NOP;                    //Moving five number from 2000H to 2040H
MVI C,05;
LXI H,2000H;
LXI D,2040H;
JUMP: MOV A, M;
STAX D ;                       //Stores contents of A in D
INX H;                         //Goes to next in original list
INX D;                         //Goes to next in where to store
DCR C;                         //Decrements counter
JNZ JUMP;
HLT;
```

PROGRAM-6

CODE: Multiply two numbers using successive additions.

```
START: LXI H,2000H;            //Gets first number
MOV B, M;                      //B has first number
INX H;                         //Gets second number
MOV D, M;                      //D has second number
XRA A;                         //A=0
MVI C,00H;                     //This is to store carry
LOOP: ADD B;
JNC SKIP;
INR C;                         //If carry increment c
SKIP: DCR D;
JNZ LOOP;
LXI H,2050H;
MOV M,C;                       //Store carry
INX H;
MOV M, A;                      //Store num
HLT;
```

PROGRAM-7

CODE: Program to calculate square root of a number.

```
START: NOP;
MVI D,01;
MVI E,01;
LDA 2050H;
LABEL: SUB D;
JZ JUMP;
INR D;
INR D;
INR E;
JMP LABEL;
JUMP: MOVA, E;
STA 2000H;
HLT;
```

PROGRAM-8

CODE: Program to calculate factorial using recursion.

```
START: LXI H,2000H;
MOV B, M;
MVI D, 01H;
LOOP: CALL LABEL
DCR B;
JNZ LOOP;
INX H;
MOV M, D;
HLT;
LABEL: MOV E, B;
MVI A, 00H;
LABEL2: ADD D;
DCR E;
JNZ LABEL2;
MOV D, A;
RET;
```