

FACTORIAL OF A GIVEN NUMBER

EXP-9

AIM: To find the factorial of a given number using 8085 microprocessor.

ALGORITHM:

- 1) Load the data into register B
- 2) To start multiplication set D to 01H
- 3) Jump to step 7
- 4) Decrements B to multiply previous number
- 5) Jump to step 3 till value of B>0
- 6) Take memory pointer to next location and store result
- 7) Load E with contents of B and clear accumulator
- 8) Repeatedly add contents of D to accumulator E times
- 9) Store accumulator content to D
- 10) Go to step 4

PROGRAM:

```
LDA 2001
MOV B,A
MVI C,#01
MVI E,#01
LOOP: MOV D,C
MVI A,00H
LP: ADD E
DCR D
JNZ LP
MOV E,A
INR C
```

DCR B

JNZ LOOP

MOV A,E

STA 2010

HLT

INPUT:

Data	Stack	KeyPad	Memory	I/O Ports
Start 2001 OK				
Address (Hex)	Address	Data		
07D1	2001	5		
07D2	2002	0		
07D3	2003	0		
07D4	2004	0		
07D5	2005	0		
07D6	2006	0		
07D7	2007	0		
07D8	2008	0		
07D9	2009	0		
07DA	2010	120		
07DB	2011	0		
07DC	2012	0		

Line No	Assembler Message
0	Program assembled successfully

OUTPUT:

File	Reset	Assembler	Debug	Help
Load me at:				
1 LDA 2001				
2 MOV B,A				
3 MVI C,01				
4 MVI E,01				
5 LOOP: MOV D,C				
6 MVI A,00H				
7 IF: ADD E				
8 DCR D				
9 JNZ LP				
10 MOV E,A				
11 INR C				
12 DCR B				
13 JNZ LOOP				
14 MOV A,E				
15 STA 2010				
16 HLT				
17				

Data	Stack	KeyPad	Memory	I/O Ports
Start 2001 OK				
Address (Hex)	Address	Data		
07D1	2001	5		
07D2	2002	0		
07D3	2003	0		
07D4	2004	0		
07D5	2005	0		
07D6	2006	0		
07D7	2007	0		
07D8	2008	0		
07D9	2009	0		
07DA	2010	120		
07DB	2011	0		
07DC	2012	0		

Line No	Assembler Message
0	Program assembled successfully

RESULT: Thus the program was executed successfully using 8085 processor simulator.