

FACTORIAL OF A GIVEN NUMBER

EXP NO: 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:

Data Stack KeyPad Memory I/O Ports					
Start: 2001					
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.