Code Explanation 2

Initial values of the registers

- R0 = R1 = R2 = R5 = 6
- R5 = R5 -1 = 6-1 = 5
- R1 = R1 -1 = 6-1 = 5
- R2 = R2 -1 = 6-1 =5
- Let ‘A’ be the work register
- A=0

Iteration 1

- Loop2: call mul
- Mul:
- A = A +R0 = 0 + 6 =6
- R1 = R1 -1 = 5-1 =4
- Goto mul (R1 is not zero)

Iteration 2

- Mul:
- A = A +R0 = 6 + 6 =12
- R1 = R1 -1 = 4-1 =3
- Goto mul (R1 is not zero)

Iteration 3

- Mul:
- A = A +R0 = 12 + 6 =18
- R1 = R1 -1 = 3-1 =2
- Goto mul (R1 is not zero)

Iteration 4

- Mul:
- A = A +R0 = 18 + 6 =24
- R1 = R1 -1 = 2-1 =1
- Goto mul (R1 is not zero)

Iteration 5

- Mul:
- A = A +R0 = 24 + 6 =30
- R1 = R1 -1 = 1-1 =0
- R0 = 30 (R1 is zero)
- Return (jumps to next line of call mul)

Next line of call mul

- R2 = R2 -1 = 5-1 =4
- A = R2 = 4
- R1 =A =4
- A=0
- R5= R5-1 =4
- Goto loop2 (R5 is not zero)

Factorial

- The above code multiplied 6 * 5
- It is stored in R0 (R0 = 30)
- So this process continues until R5 = 0
- Therefore R0 = 6 * 5 * 4 * 3 * 2 * 1 = 720