**Branching Operations (In Assembly Language) Exercises**

1. Put a random number in R3 and increment it until it equals E1h.
2. Put a random number in address 20h and increment it until it equals a random number put in R5.
3. Detect both the OV flag & CY flag being set in 8051.If set put 1 in R7, else put 0 in R7.
4. Count the number of 1s in any number in register B and put the count in R5.
5. Transfer the data in internal RAM locations 10h to 20h to internal RAM locations s30h to 40h.
6. Write a program to copy a block of 10 bytes of data from RAM locations starting at 35H to RAM locations starting at 60H.
7. Assuming that in ROM space at 250H contains ‘Vector’, write a program to transfer the bytes into RAM locations starting at 40H.
8. Let the assembler locate (initialize) the string ‘Welcome’ in ROM space. Write an ALP to bring in the string into the RAM space.
9. Write a program to add the following numbers and save the result in R2, R3. The data is stored in on-chip ROM.

MYDATA: DB 53, 94, 56, 92, 74, 65, 43, 23, 83

1. Write a sub-routine that adds to 8-bit numbers and stores the result in r6(MSB) and r7(LSB) and call it.
2. Write a sub-routine to create a delay of about 1 ms and call it.
3. Write a sub-routine to create any approximate delay within of 1 ms up to 100ms.