Lab Manual 05– Mul, Div Instructions and Subroutines

Note: In following functions use appropriate local variables where required.

Activity 1: Write a subroutine **Power** that takes x and y as parameters, calculates **x** raise to power **y** and returns the result. Use MUL instruction for multiplication and test your function with three different data/function calls.

Activity 2: Write a subroutine **SeriesSum** that calculate the following sum:

$$ans = \sum_{n=1}^{l} r^{n}\text{-}1$$

Where r and l are variables to be passed through stack. Use Power function (written in activity 1) to calculate r^n. Parameter passing from one subroutine to the other should be via stack. The final answer should be returned from stack as well. For example, if r =2 and l = 8 then final answer is 0x1F6.

Activity 3: Write a subroutine **BinarySearch** that takes (base address of) a sorted array and its size and a key as parameters, searches the key from array using binary search. If the element is found set AX to one and otherwise to zero. Use DIV instruction to find middle index in each iteration. Test your function on three different arrays and keys (three function calls).

Syntax to declare a buffer:

```
abc: times 32 dw 0 ; space for 32 words

xyz: times 256 dw 0 ; space for 256 words
```