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**18ES603 Lab**

**Assembly Language Program – Questions**

1. Write and assembly language program in ARM Cortex-M3 to,
   1. Sort an array of five numbers in ascending/descending order. (Assume numbers are already available in memory locations)
   2. Find the largest number from an array of ten numbers. (Assume numbers are already available in memory locations)
   3. Find the sum of the arithmetic progression (AP) with numbers 2, 4, 6, 8, 10. (Assume numbers are already available in memory locations. Implement the expression for finding sum of AP).
   4. Find the rank of five students in a class and store the total marks in the descending order of marks. The students have five subjects.
   5. Multiply a number by 5 without using multiply instruction.
   6. Separate two nibbles from a given byte F9H and store the results in r0 and r.
   7. Separate even and odd numbers from a given array of 10 numbers and store in separate arrays.
   8. Find the sum of the first n natural numbers.
   9. Find factorial of a number if content of R0 is even else generate Fibonacci series till the value of R0.
   10. Check the last two bits of register R0 and do the following operation. If the bits are

00 – Mask the lower most nibble of R0

01 – Clear the 11th bit of R0

10 – Find the compliment of R0

11 – Decrement R0 by 1.

1. Write the equivalent assembly language program in ARM Cortex-M3 for,
   1. if (a==b)

{

y = (a \* b) + c;

}

else

{

y = 10;

}

* 1. if (a > b)

{

y = 1;

}

else

{

y = [(a / 2) \* b] + c;

}

* 1. int a = 4, b=5;

for (i=0; i < 10; i++)

{

a = a + b;

}

* 1. int a = 2, b=2;

do

{

a = a + b;

i = i + 1;

} while (i < 10)