COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

UCS507: COMPUTER ARCHITECTURE AND ORGANIZATION

LAB ASSIGNMENT

ARM Processor

- **Introduction of arm processor (32-bit architecture)**
- **Briefing of**
  - **i. Addressing mode**
  - **ii. Instruction set**
  - **iii. Registers**
- **Keil software installing and program execution in it**

1. Write a program in ARM assembly language to add and subtract two 32-bit numbers using:
   i) Direct addressing mode=2
   ii) Indirect addressing mode=2
   iii) Barrel shifter=4
2. Write a program to perform left and right shift of a number.=4
3. Write a program to find whether number is even or odd.=1
4. Write a program to perform Multiplication using addition.=1
5. Write a program to store Multiplication table of a number.=1
6. Write a program to perform Division using subtraction.=1
7. Write a program to find the factorial of a number.
8. Write a program in ARM assembly language to find 1's and 2's compliment.
9. Write a program in ARM assembly language to find greater of two numbers
10. Write a program to perform 64-bit addition of two 64-bit number.
11. Write a program to find the largest and smallest number in an array.
12. Write a program to find the sorting in an array.
13. Write a program to copy an array.
14. Write a program to count the number of characters in a given string.
15. Write a program to find the number of occurrence of a particular character in a string.
16. Write a program to add two integer strings
17. Write a program in ARM assembly language to implement the following equation:
    i) ax^2+by^2
    ii) $6(x+y)+2z+4$
18. Write a program in ARM assembly language to verify how many bytes are present in a given set which resemble 0xAC.
19. Write a program in ARM assembly language to count the number of 1s and 0s in a given byte and verify the result.
20. Write a program in ARM assembly language for transferring of block of data (e.g. block transfer of 10 numbers from one memory location to another e.g. 0x00000030 to 0x00000300.)