## Module: 02

## INTRODUCTION TO THE ARM INSTRUCTION SET

1. Explain in detail about data processing instructions in ARM.
2. List and explain all logical and arithmetic shift and rotate instructions with syntax and relevant examples.
3. Illustrate with a neat diagram Logical shift left operation.
4. Define a barrel shifter? Which are the different barrel shifter operations?
5. Describe various Logical instructions along with suitable examples.
6. Describe various Comparison instructions along with suitable examples
7. Explain any four arithmetic instructions.
8. Explain any four branch instructions with syntax
9. Explain BIC instruction with example
10. Explain the following instructions of ARM processor
    i) MUL ii) MLA iii) TEQ iv) UMLAL v) MRS vi) MSR
11. Explain the load and store instructions of ARM processor.
12. Write a note on addressing modes of ARM processor.
13. Explain the following instructions of ARM processor
    i) MLA
    ii) LSR
    iii) SMULL
    iv) CMP R0, R1
14. Explain the following instructions of ARM processor:
    i. ADD R0, R1, R2
    ii. SBC R0, R1, R2
    iii. MUL R3, R2, R1
    iv. MLA R4, R3, R7, R8
    v. RSB $R_d$, $R_{s1}$, $R_{s2}$
15. Explain following instructions with example:
    a) LDR b) STR c) LDRB d) STRB
16. Explain following instructions with example:
    a) LDM b) STM c) MRS d) MSR
17. Explain following instructions with example:
    a) LDRH b) STRH c) LDRSB d) LDRHB
18. Write a program to find the sum of the first 10 integer numbers.
19. Write a program to find the factorial of a number.