

Course: B.SC.(Physical Sciences)

Paper: Computer System Architecture

Semester: IV

Marks:75 Theory+25 Internal Assessment

Week	Topic
Week 1	Data Representation and basic Computer Arithmetic: Number systems, complements, fixed and floating point representation
Week 2	Character representation, addition, subtraction, magnitude comparison
Week3	Logic gates, Boolean algebra, combinational circuits, circuit simplification, flip-flops
Week4	Sequential circuits, decoders, multiplexors, registers, counters and memory units (Assignment-1)
Week5	Computer registers, bus system, instruction set, timing and control
Week6	Instruction cycle, memory reference. (Assignment-2)
Week7	Input-output and interrupt, Register organization
Week8	Arithmetic and logical micro-operations
Week9	Stack organization, micro programmed control and (TEST-1)
Week10	Instruction formats, addressing modes, instruction codes
Week11	Input output programming
Week12	Machine language, assembly language
Week13	Revision, doubt classes and (TEST-2)
Week14	Revision

Computer System Architecture Lab

1. Write a program to convert a number in Radix 'R' to radix 10 and vice versa. Test the same by a. Converting an unsigned number from binary, octal, hex to decimal. b. Converting an unsigned number from decimal to binary, octal, hex .
2. Write a program that will prompt for the input of two integer values. Then using the bitwise shift operators show the result of a. Left shifting the first number by the second b. Right shifting the first number by the second c. Exclusive OR of the first number by the second bitwise d. OR of the first number by the second bitwise e. AND of the first number by the second bitwise
3. Write a program that will prompt for the input of a binary value. Find out following complements. a. One's complement b. Two's complement
4. Write a program to print the values of a 5 bit binary up-down counter. User should be able to specify the up or down nature of the counter.
5. Write a program to implement the following binary operations: a. Addition b. Subtraction using 2's complement

