Unit – I

1. Describe the basic operational concepts of a computer**. (Assignment)**
2. Explain different types of addressing modes supported in RISC system with examples.
3. Define subroutine. Explain the use of a stack frame during the execution of the subroutine.

(OR)

Define subroutine. Discuss various parameter passing mechanisms in subroutine with examples. **(Assignment)**

4. Describe the functional units of a computer.
5. Describe different types of computers.
6. Explain various representations used for the integer and floating point numbers in detail.
7. Conversion of given numbers into their 2's complement form and adding them.
8. Explain Shift and Rotate instructions.**(Assignment)**
9. Explain the 5-step sequence of actions for the following instructions Load, store and add. **(Assignment)**11. What is meant by byte-addressable memory? Describe the Big-endian and Little-endian assignments of memory addresses. **(Assignment)**
12. Explain briefly about encoding of machine instructions.

Unit – II

1. Discuss the concept of hardwired control with a neat diagram.
2. Write about control signals and Hardwired control unit.
3. Explain different hardware components with neat diagrams.
4. Write about instruction cycle with neat diagram.
5. Write about pipelining and its importance in high speed applications.
6. Explain the five-stage pipeline organization with a diagram. How the memory delays effects the pipelined execution.
7. What is the effect of conditional branching on the pipeline? Explain the concepts of delayed branch & dynamic branch prediction.
8. List the sequence of actions needed to fetch and execute the following instructions.

i) Add R3, R4, R5 ii) Load R5, X(R7) iii) Store R6, X(R8)

Unit – III

1. Explain the concept of the interrupt and how that can be handled when multiple devices are connected to the processor.
2. What is the need of I/O interfaces? Explain how they control the data transfer.
3. Explain the bus structure with its operation. Discuss about Synchronous and Asynchronous data transfer.
5. Discuss the basic structure and operations of the PCI & SCSI bus in detail.
6. Discuss in detail about programmed controlled I/O. **(Assignment)**
7. What is an Interrupt ? Write about enabling and disabling interrupts. **(Assignment)**
8. Discuss in detail about the connection between various peripheral devices. **(Assignment)**

Unit – IV

1. What is DMA (Direct Memory Access)? Discuss in detail the role of the DMA controller in detail.
2. Explain the Booth's algorithm. Apply the booth's algorithm to multiply the numbers (-13) and (+16). **(Assignment)**
3. Design the 4-bit carry-look ahead adder with generating and propagate functions.
4. What is mapping function? What are the ways the cache can be mapped? Explain in detail.
5. Explain about RAM and ROM.
6. Draw and explain logic circuit diagram of restoring division algorithm. **(Assignment)**