Department : ECE

Year & Semester :III&V

Sub Code & Sub Name : 23ECE355A & COMPUTER ARCHITECTURE & ORGANIZATION

Unit-I

S.No	Part-A Questions
1.	Define computer organization and computer architecture.
2.	What is a register transfer language?
3.	List any two arithmetic microoperations.
4.	Define memory reference instruction.
5.	What is the purpose of the program counter?
6.	Mention any two shift microoperations.
7.	What is an interrupt in computer systems?

S.No	Part-B Questions
1.	With a block diagram, explain the basic structure of a digital computer.
2.	Describe the different types of microoperations with examples.
3.	Explain the register transfer language with suitable examples.
4.	Describe the instruction cycle in detail with a diagram.
5.	Discuss the design of a basic computer with timing and control.
6.	Explain memory reference instructions with flowchart and example.
7.	Write short notes on input-output and interrupt

Unit-II

S.No	Part-A Questions
1.	What is microprogramming?
2.	Define control memory.
3.	List any two addressing modes.
4.	What is an instruction format?
5.	What is meant by program control?
6.	Mention any two types of data manipulation instructions.
7.	What is address sequencing in control unit design?

S.No	Part-B Questions
1.	Explain microprogrammed control with a neat diagram.
2.	Describe address sequencing and the control unit design process.
3.	Explain general register organization with a diagram.
4.	Describe various instruction formats with examples.
5.	Explain different addressing modes used in instruction execution.
6.	Discuss program control instructions and their operations.
7.	Compare and contrast microprogrammed and hardwired control units.

Unit-III

S.No	Part-A Questions
1.	Define 1's and 2's complement.
2.	What is fixed point representation?
3.	What is IEEE 754 format?
4.	List any two multiplication algorithms.
5.	What is the difference between signed and unsigned representation?
6.	What is a decimal arithmetic unit?
7.	Mention any one floating point arithmetic operation.

S.No	Part-B Questions
1.	Explain fixed-point and floating-point representations with examples.
2.	Describe the process of binary multiplication with an algorithm.
3.	Explain the division algorithm used in computer arithmetic.
4.	Compare floating point and fixed point arithmetic operations.
5.	Discuss the different types of complements and their applications.
6.	Explain floating-point arithmetic operations in detail.
7.	Describe the working of a decimal arithmetic unit.

Unit-IV

S.No	Part-A Questions
1.	Define DMA. Remembering
2.	What is cache memory?
3.	What is associative memory?
4.	Mention any two modes of data transfer.
5.	What is memory hierarchy?
6.	List types of memory in a computer system.
7.	What is asynchronous data transfer?

S.No	Part-B Questions
1.	Explain various modes of data transfer in I/O organization.
2.	Describe asynchronous data transfer with diagrams.
3.	Explain the concept and working of DMA.
4.	Discuss memory hierarchy and characteristics of each level.
5.	Explain cache memory organization and operation.
6.	Describe associative memory and its use in fast access.
7.	Compare different types of memory: main, auxiliary, cache, and associative.

Unit-V

S.No	Part-A Questions
1.	What is RISC?
2.	2 List any two features of CISC architecture.
3.	3 Define pipelining.
4.	4 What is a vector processor?
5.	5 What is cache coherence?
6.	6 What is inter-processor communication?
7.	7 What is parallel processing?

S.No	Part-B Questions
1.	Differentiate between RISC and CISC architectures with examples.
2.	Explain instruction pipelining and types of pipeline hazards.
3.	Describe vector and array processors in detail.
4.	Discuss the concept and advantages of parallel processing.
5.	Explain the architecture of multiprocessor systems.
6.	Describe interconnection structures and inter-processor communication.
7.	What is cache coherence? Explain methods to maintain it.