

Digital Logic and Computer Organization Question Bank

Unit 1

1. a. Write a note on performance measure
b. Explain basic operational concepts of a computer with neat diagram
2. a. What are the various ways of representing negative numbers? Explain with example
b. Distinguish between Fixed point and Floating point representation of a given number
3. a. Perform the arithmetic operation in binary using 2's complement representation
(i). $(+42) + (-13)$ (ii) $(-42) - (-13)$.
b. Convert the following numbers with the indicated bases to decimal.
(i) $(12121)_3$ (ii) $(4310)_5$ (iii) $(50)_7$
4. What is a bus? Explain about bus structure.
5. Discuss in detail about error detection code.

Unit 2

1. a. Draw and explain the flowchart of instruction cycle.
b. Explain about addressing modes with example.
2. a. Draw the flowchart and explain about booth's algorithm
b. Multiply 100111 with 11011 using booth's algorithm
3. a. Which factors decide the instruction format? Explain in detail
b. Explain about data manipulation instructions.
4. a. Explain about interrupt cycle in detail.
b. Explain memory reference instructions
5. Explain about floating point arithmetic operations with flowchart.

Unit 3

1. What are logical micro operations? Explain about applications of logical micro operation.
2. Explain different types of computer registers with common bus system with a neat sketch.
3. Explain about shift micro operation
4. What is control memory? Explain with address sequence.
5. a. Explain in detail the design of control unit with a block diagram.
b. Explain about micro program sequencer for control memory

Unit 4

1. What is cache memory? How can we analyse the performance of cache memory?
2. Explain about direct and set associative map technique in cache.
3. a. What is DMA? Explain
b. Write about daisy chaining priority.
4. a. Write about asynchronous data transfer.
b. Explain about serial communication.
5. Differentiate RAM and ROM
6. What is IO Interface? Discuss the differences that exist between central computer and Peripherals.
7. Explain source initiated asynchronous data transfer procedure with necessary diagram.

Unit 5

1. Explain about arithmetic pipelining.
2. Draw and explain the flowchart of four segment instruction pipelining.
3. What is instruction pipelining? What are the conflicts that occurred during instruction Pipelining?
4. Interconnection structures (Time shared common bus system, multiport memory, Cross bar switch, Multistage switching network, Hypercube network)
5. Explain about Flynn's Classification.
6. Why inter process synchronization needed? Explain

