

- a) Vector processing
- b) RISCVsCISC
- c) Virtual memory
- d) PCI V s SCSI bus

a) Vector processing:

Vector processing is a type of parallel processing that involves the use of vector operations, in which a single instruction operates on multiple data elements simultaneously. Vector processing is commonly used in scientific simulations, image processing, and other applications that require intensive numerical computations. Vector processors typically have specialized hardware for vector operations, such as vector registers and vector pipelines.

b) RISC vs CISC:

RISC (Reduced Instruction Set Computing) and CISC (Complex Instruction Set Computing) are two different approaches to computer architecture. RISC processors have a simplified instruction set and execute instructions in a single clock cycle, which allows them to achieve high performance. CISC processors have a more complex instruction set that allows them to perform complex operations in a single instruction. RISC processors are typically used in embedded systems and high-performance computing, while CISC processors are used in desktop computers and servers.

c) Virtual memory:

Virtual memory is a technique that allows a computer to use more memory than is physically available by temporarily transferring data from RAM to disk. Virtual memory is managed by the operating system, which divides the memory into pages and maps these pages to

physical memory or disk. When an application accesses a page that is not currently in physical memory, the operating system retrieves the page from disk and stores it in physical memory. Virtual memory allows multiple applications to share physical memory and can improve system performance by reducing the need for physical memory.

d) PCI vs SCSI bus:

PCI (Peripheral Component Interconnect) and SCSI (Small Computer System Interface) are two different types of computer buses used for connecting peripheral devices. PCI is a high-speed bus that is commonly used for connecting devices such as graphics cards and network adapters to the motherboard. SCSI is a more specialized bus that is commonly used for connecting storage devices, such as hard drives and tape drives, to the computer. SCSI devices typically have faster transfer rates than PCI devices and can support more devices on a single bus. However, SCSI is generally more expensive and complex to implement than PCI.

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19. Write a short note on design of arithmetic unit ?
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22. What is the format of Micro Instruction in Computer Architecture explain ?
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24. Explain the following interfaces in Detail:PCI Bus, SCSI Bus, USB Bus
25. What is Memory Organization ? Discuss different types of Memory Organization in Computer System.
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27. Write short note on improving cache performance methods in detail ?
28. What is Multiprocessor ? Explain inter process communication in detail ?
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30. Discuss the following in detail: RISC architecture, Vector processing ?
31. Define the instruction format ? Explain I/O System in detail ?
32. Explain the design of arithmetic and logic unit by taking on example ?
33. Explain how addition and subtraction are performed in fixed point number ?
34. Explain different modes of data transfer between the central computer and I/O device ?
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36. Explain signed magnitude, signed 1's complement and signed 2's complement

representation of numbers. Find the range of numbers in all three representations for 8 bit register.

37. If cache access time is 100ns, main memory access time is 1000 ns and the hit ratio is 0.9. Find the average access time and also define hit ratio.
38. Explain hardwired microprogrammed control unit ? What is address sequencer circuit ?
39. Explain how a stack organized computer executes instructions? What is Stack?
40. Draw and explain the memory hierarchy in a digital computer. What are advantages of cache memory over main memory?
41. What is Associative memory? Explain the concept of address space and memory space in Virtual memory.
42. What is Paging? Explain how paging can be implemented in CPU to access virtual memory.
43. Explain SIMD array processor along with its architectural diagram ?
44. Draw the functional and structural views of a computer system and explain in detail ?
45. Explain general register organization.
46. Compare and contrast DMA and I/O processors ?
47. Define the following: a) Flynn's taxonomy b) Replacement algorithm
48. Explain the various pipeline vector processing methods ?
49. Describe the language features for parallelism ?
50. What are different addressing modes? Explain them.
51. Explain any page replacement algorithm with the help of example ?
52. What is mapping? Name all the types of cache mapping and explain anyone in detail.
53. Explain arithmetic pipeline ?
54. Write short notes on, a) SIMD, b) Matrix multiplication c) Instruction format
55. Differentiate: a) Maskable and non-maskable interrupt b) RISC and CISC
56. Computer Organization Previous Years Solved Questions
57. Booths algorithm to multiply +5 and -15