Explain signed magnitude, signed l’s complement and signed 2’s complement representation of numbers. Find the range of numbers in all three representations for 8 bit register.

Signed magnitude, signed 1’s complement, and signed 2’s complement are three methods of representing signed numbers in binary form.

Signed magnitude

Signed magnitude representation represents a signed number using the most significant bit as a sign bit (0 for positive numbers, 1 for negative numbers) and the remaining bits as the magnitude of the number. For example, in 8-bit signed magnitude representation, the number +7 is represented as 00000111 and the number -7 is represented as 10000111.

Signed 1’s complement

Signed 1’s complement representation represents a signed number by taking the 1’s complement of the magnitude of the number and then adding a sign bit. The sign bit is 0 for positive numbers and 1 for negative numbers. For example, in 8-bit signed 1’s complement representation, the number +7 is represented as 00000111 and the number -7 is represented as 11111000.

Signed 2’s complement

Signed 2’s complement representation represents a signed number by taking the 2’s complement of the magnitude of the number and then adding a sign bit. The sign bit is 0 for positive numbers and 1 for negative numbers. To compute the 2’s complement of a number, we invert all its bits and add 1 to the result. For example, in 8-bit signed 2’s complement representation, the number +7 is represented as 00000111 and the number -7 is represented as 11111001.

EasyExamNotes.com Explain signed magnitude, signed l’s complement and signed 2’s complement representation of numbers. Find the range of numbers in all three representations for 8 bit register.

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The range of numbers in all three representations for 8 bit register is as follows:

Signed magnitude: -127 to +127
Signed 1’s complement: -127 to +127
Signed 2’s complement: -128 to +127

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20. Write a short note on Array processors ?
21. Write a short note on LRU algorithm ?
22. What is the format of Micro Instruction in Computer Architecture explain ?
23. What is the layout of pipelined instruction in Computer Architecture ?
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.
26. Computer Organization Q and A
27. Write short note on improving cache performance methods in detail ?
28. What is Multiprocessor ? Explain inter process communication in detail ?
29. Briefly explain the concept of pipelining in detail ?
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 ?
35. Differentiate between Serial and parallel data transfer ?
36. If cache access time is lOOns, main memory access time is 1000 ns and the hit ratio is 0.9. Find the average access time and also define hit ratio.
37. Explain hardwired microprogrammed control unit ? What is address sequencer circuit ?
38. Explain how a stack organized computer executes instructions? What is Stack?
39. Draw and explain the memory hierarchy in a digital computer. What are advantages of cache memory over main memory?
40. What is Associative memory? Explain the concept of address space and memory space in Virtual memory.
41. What is Paging? Explain how paging can be implemented in CPU to access virtual

EasyExamNotes.com Explain signed magnitude, signed l's complement and signed 2's complement representation of numbers. Find the range of numbers in all three representations for 8 bit register.

memory.

42. Explain SIMD array processor along with its architectural diagram ?
43. Write short notes on
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 muliyiply +5 and -15