

To know use of registers in Assembly language programming, take a program example.

```
ORG 100h
MOV AX, 0B800h
MOV DS, AX
MOV CL, 'A'
MOV CH, 1101_1111b
MOV BX, 15Eh
MOV [BX], CX
RET
```

What is h and b in this program ?

Number system :

Binary number (b) : 0,1

Hexadecimal number (h) : 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F

What are AX, BX, etc. in this program ?

General Purpose Registers:

AX - Accumulator register | Divided in to AH and AL

BX - Base address register | Divided in to BH and BL

CX - Count register | Divided in to CH and CL

DX - Data register | Divided in to DH and DL

Segment Registers:

CS - Indicate the segment which contains current program

DS - Indicate the segment where variables are define

ES - Extra segment registers

SS - Indicate the segment containing stack.

Special Registers:

IP - Instruction pointer

Flag register - It determines the current status of microprocessor.

Example to understand use of AH and AL registers

Size of AX register is 16 bit.

That means,

AH = 8 bit

AL = 8 bit

AX = 0011000000011110b

AH = 00110000

AL = 00011110b

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21. What is the format of Micro Instruction in Computer Architecture explain ?
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30. Define the instruction format ? Explain I/O System in detail ?
31. Explain the design of arithmetic and logic unit by taking on example ?
32. Explain how addition and subtraction are performed in fixed point number ?
33. Explain different modes of data transfer between the central computer and I/O device ?

34. Differentiate between Serial and parallel data transfer ?
35. 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.
36. 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.
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 memory.
42. Explain SIMD array processor along with its architectural diagram ?
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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