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 = 001100000011110b

AH = 00110000

AL = 00011110b

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- 18. Write a short note on design of arithmetic unit?
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- 22. What is the layout of pipelined instruction in Computer Architecture?
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- 26. Write short note on improving cache performance methods in detail?
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- 30. Define the instruction format? Explain I/O System in detail?
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- 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

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- 34. Differentiate between Serial and parallel data transfer?
- 35. Explain signed magnitude, signed I'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 IOOns, 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?
- 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