

Buses

→ Address Bus
→ Data Bus
→ Control Bus

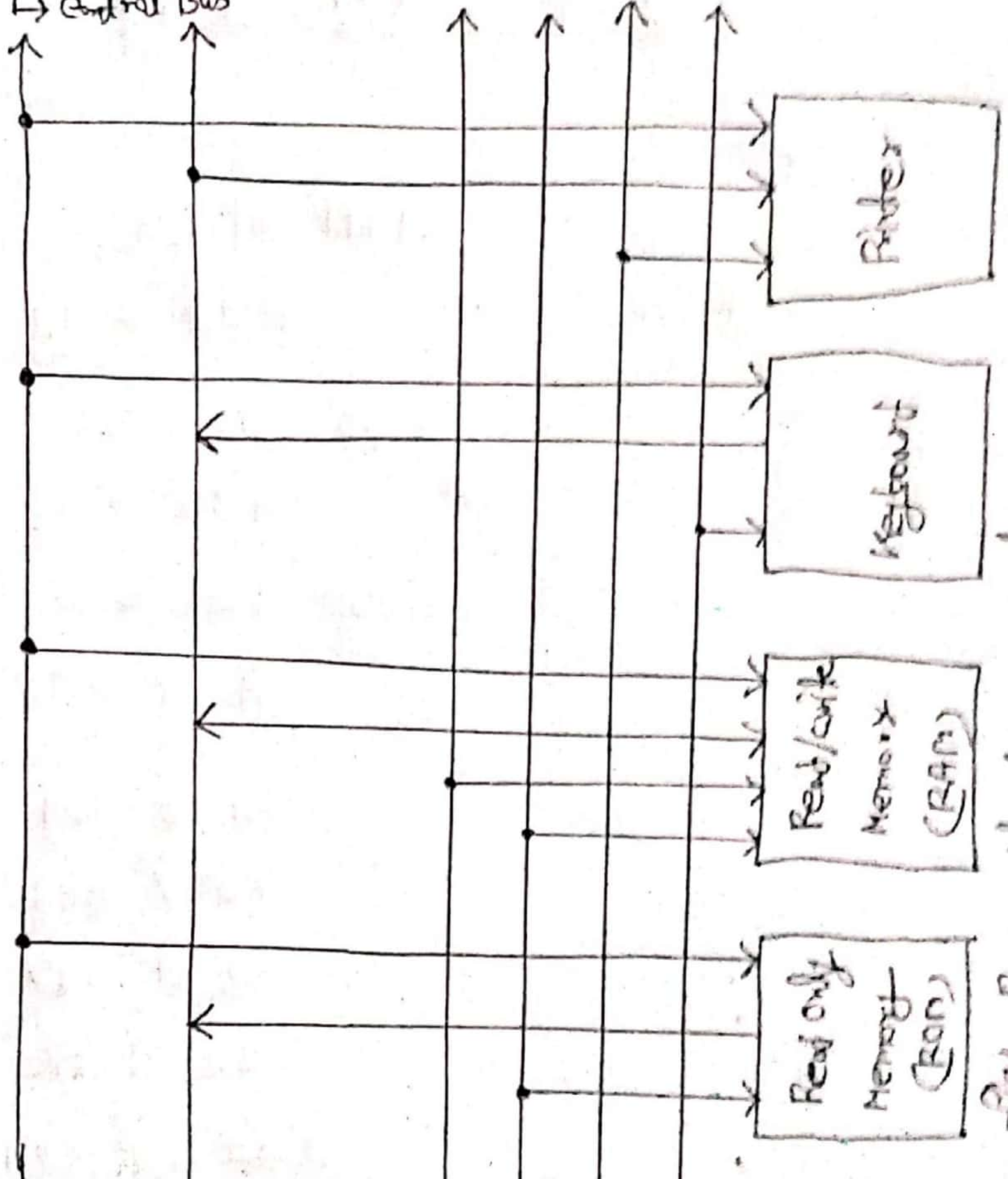
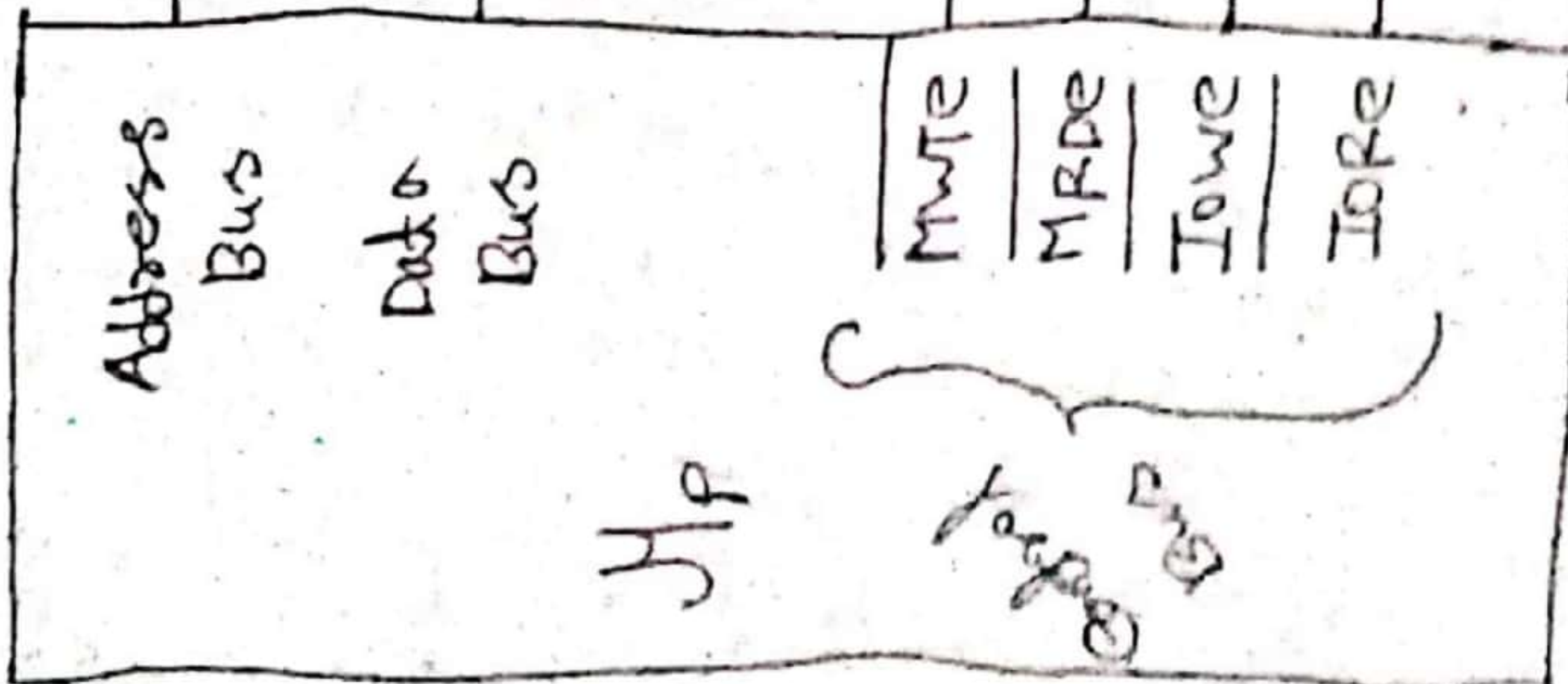


Fig - Bus structure system.

Answer to the Q - 02 (b)

Here,

MOV AL, 10 H

MOV BL, 02 H

MOV CL, EF H

SAR BL, 02

ADD BL, CL

SHR AL, 02

ROL CL, 02

A = 10H
B = 02H
C = EFH
D = 1111
E = 1111
F = 1111

Soln:

AL = 10 H

= 1111 0000

BL = 02 H

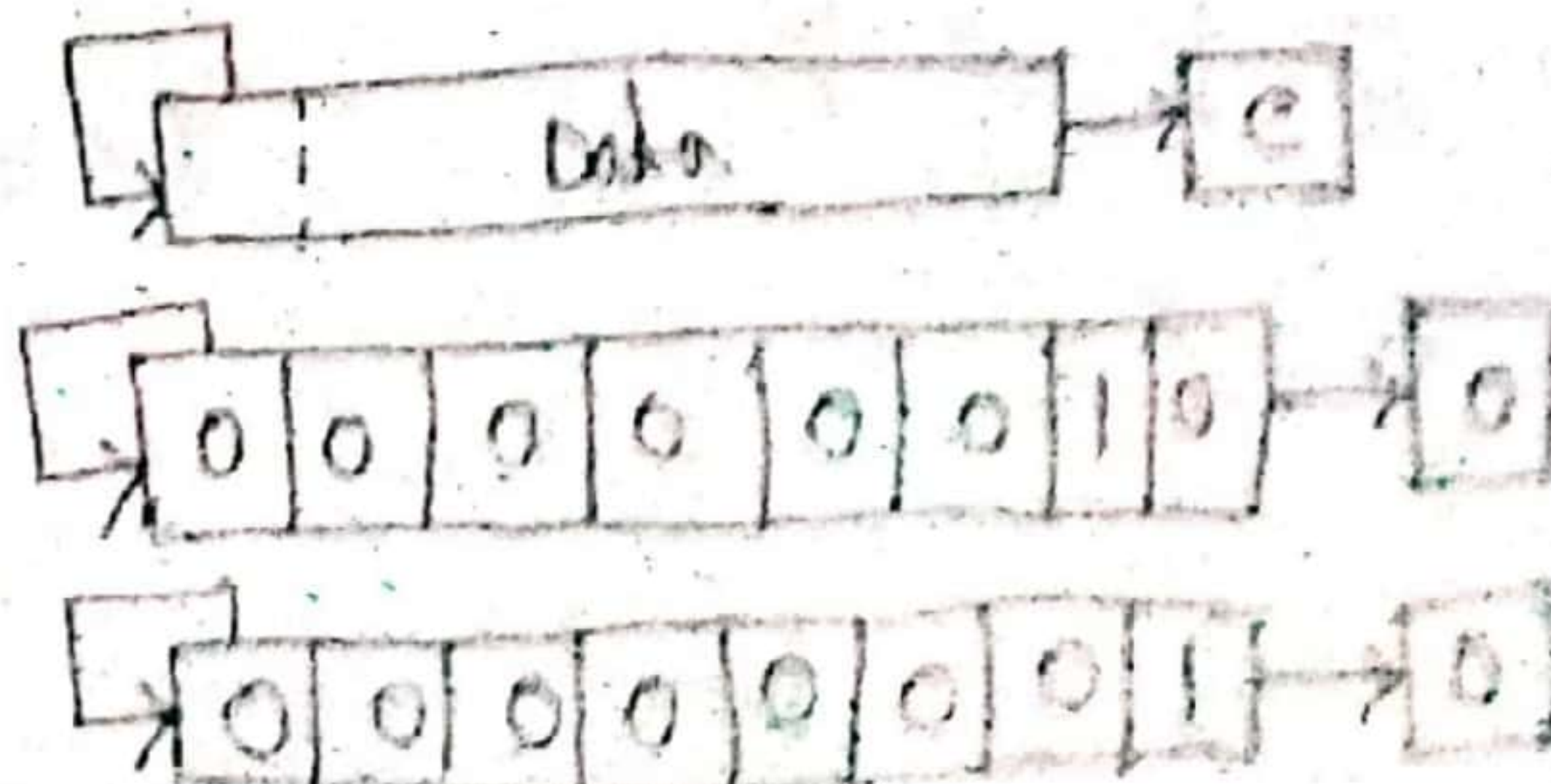
= 0000 0010

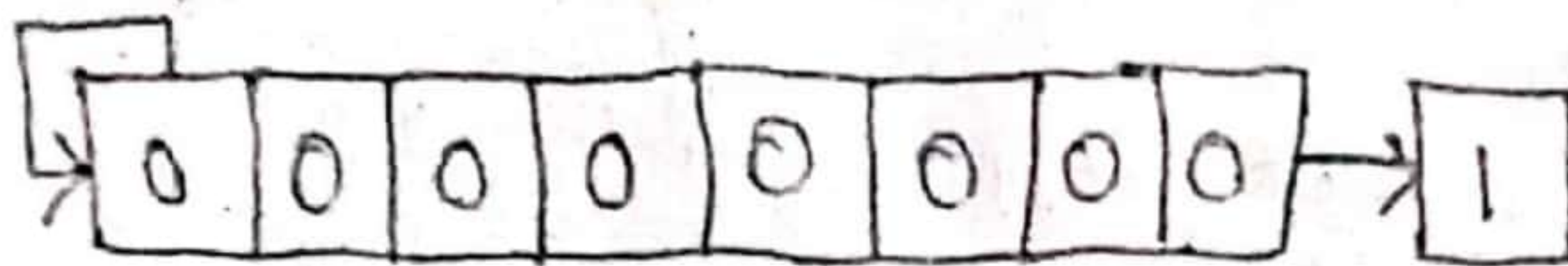
CL

EF = EF H

= 1110 1111

SAR BL, 02





BL = 0000 0000

Flags:-
 C → 1 P → 0
 A → 0 S → 0
 Z → 1 O → 0

ADD BL, CL

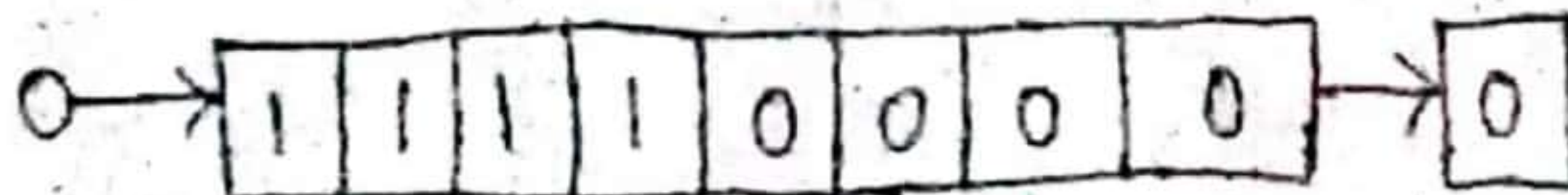
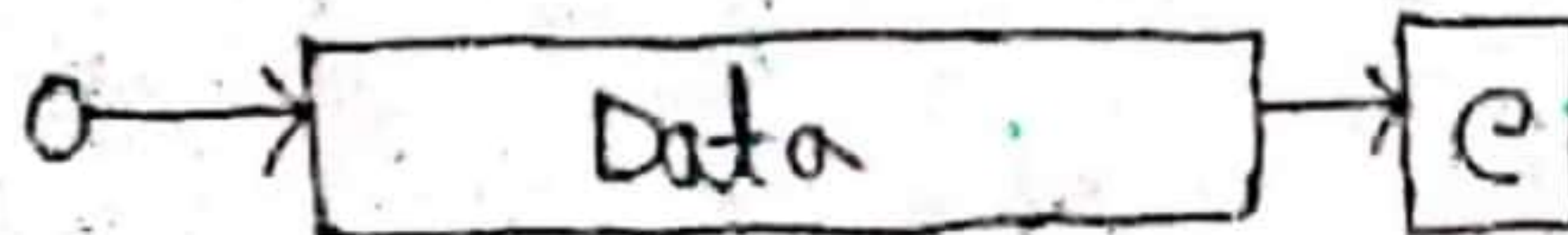
BL = 0000 0000

CL = 1110 1111

1110 1111

Flags:-
 C → 0 P → 0
 A → 0 S → 1
 Z → 0 O → 0

SHR AL, 02



AL = 0011 1100

Flags:-

C → 0

P → 1

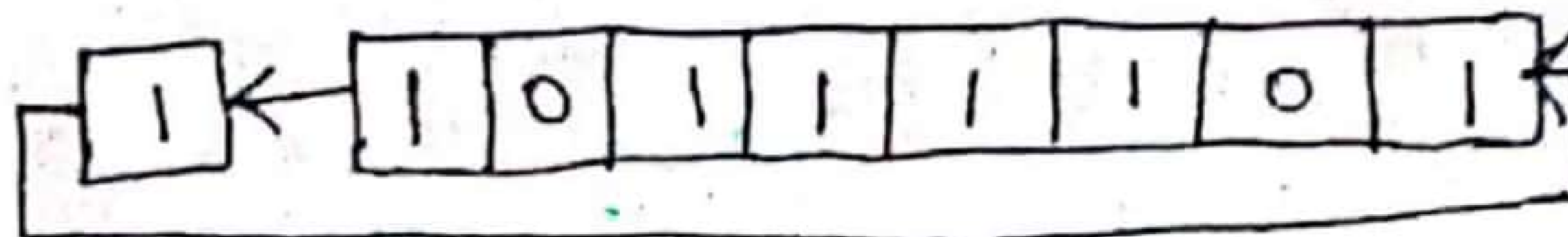
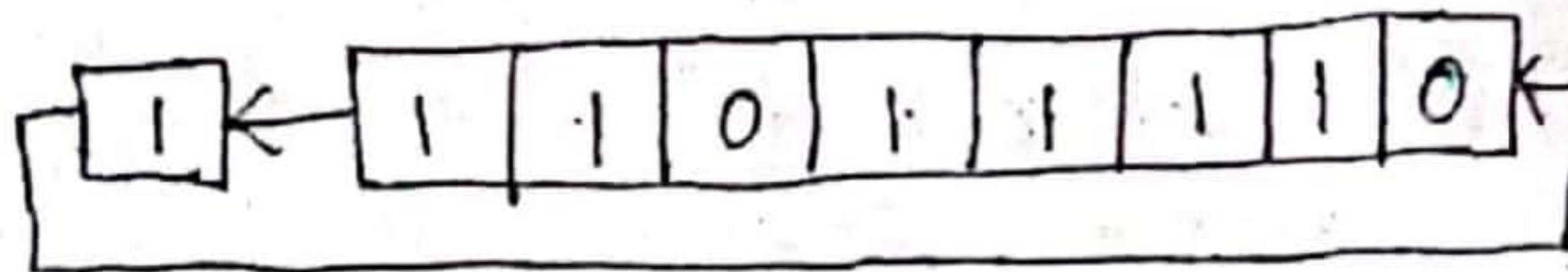
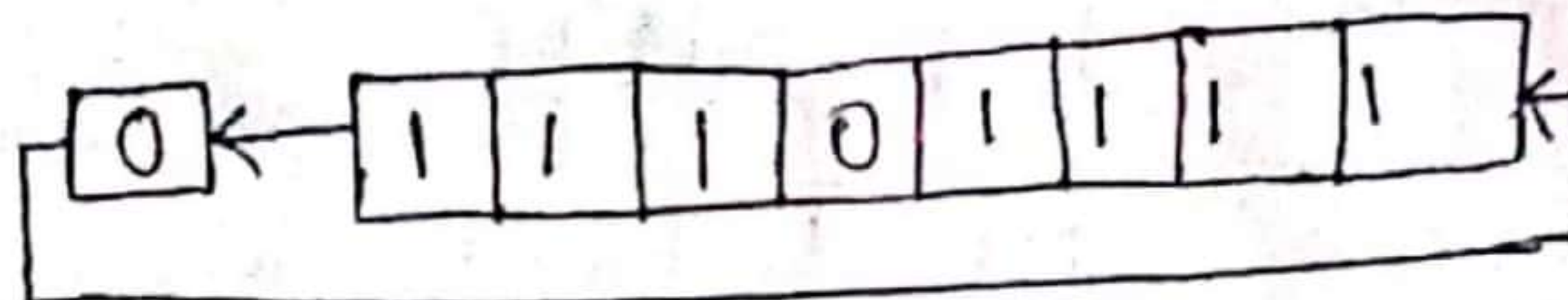
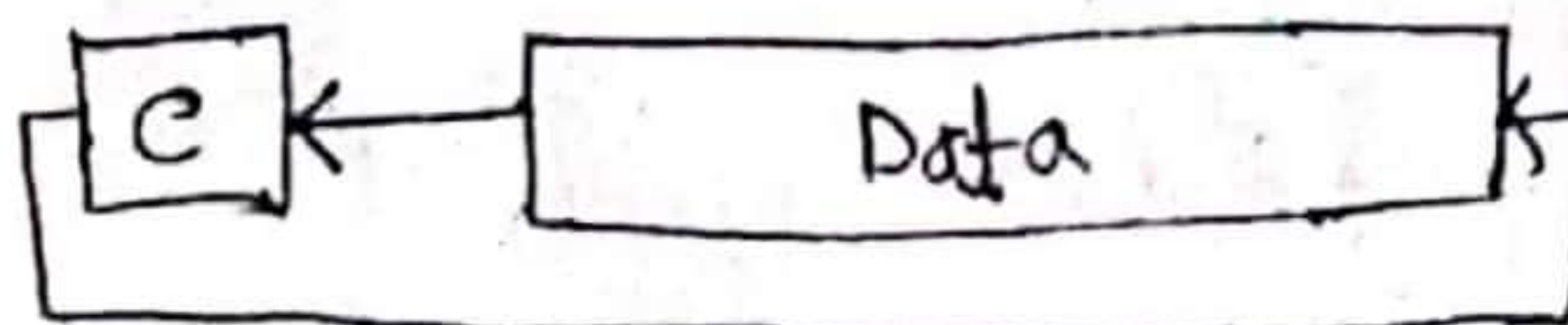
A → 0

S → 0

Z → 0

O → 0

REL CL, 02



CL = 10111101

Flags:-

C → 1

P → 1

A → 0

S → 1

Z → 0

O → 0

Answer to the Q no-04 (b)

RAM Address decoding using 74LS138, Microprocessor.

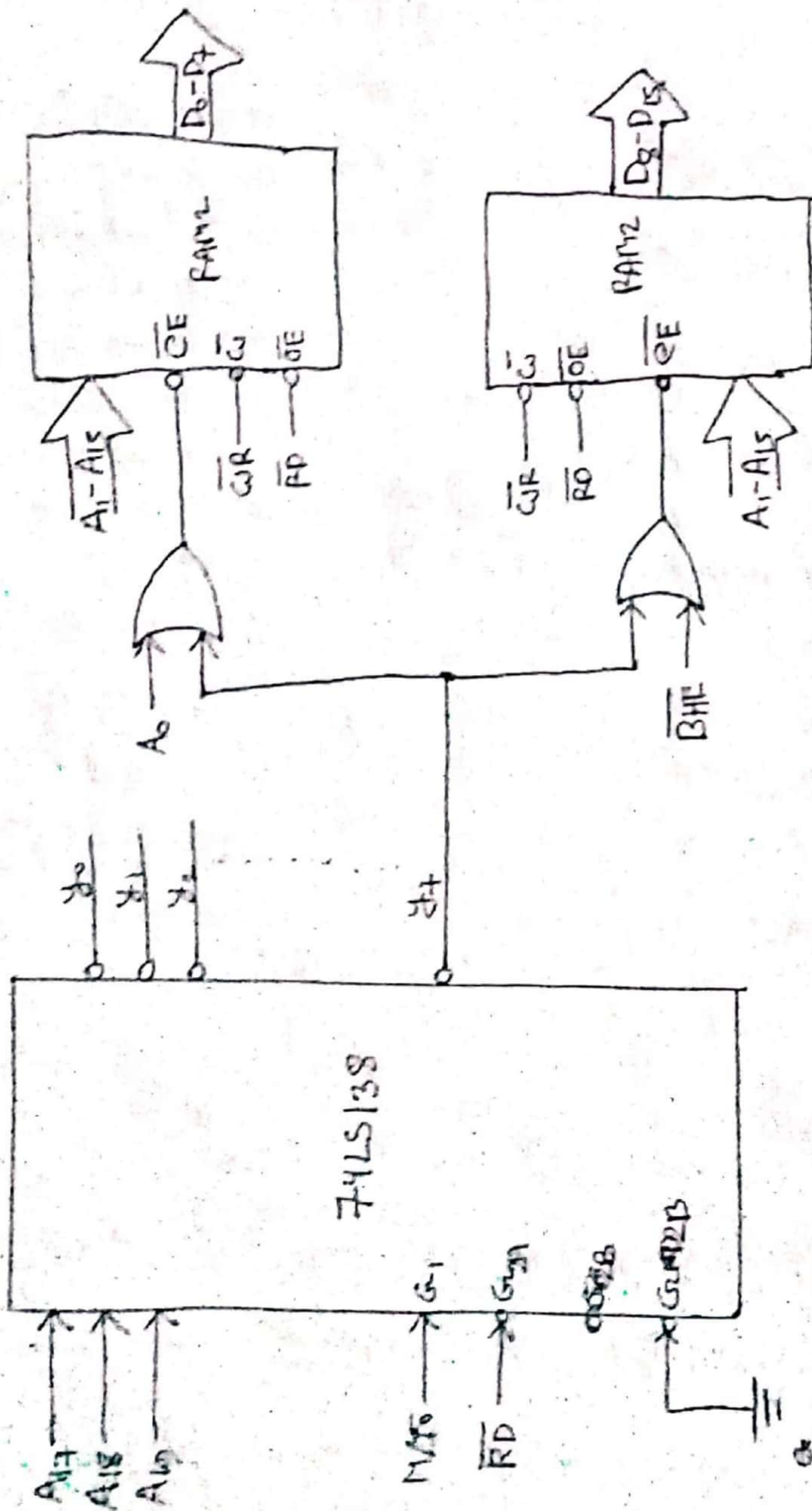
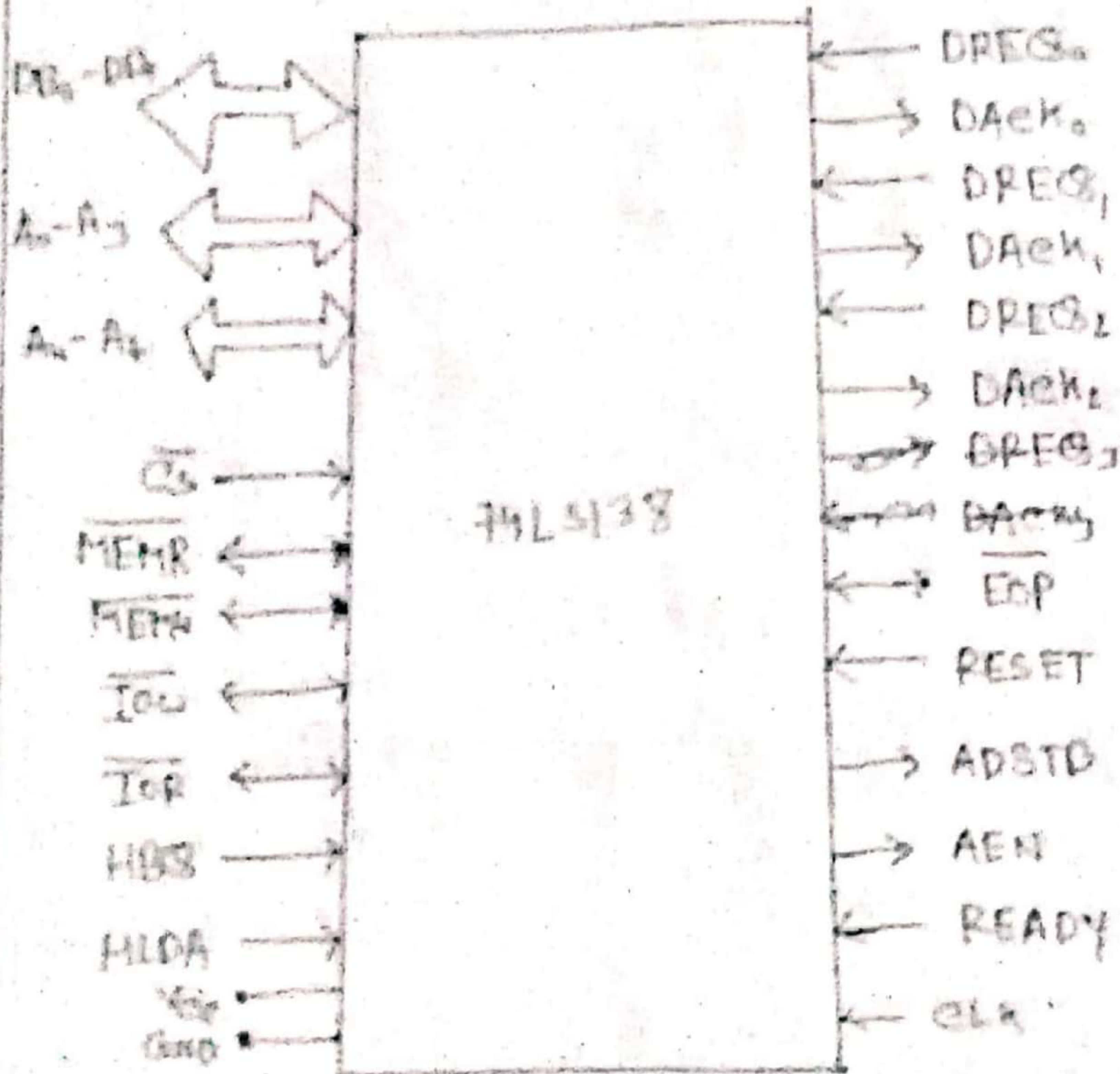


Fig:- RAM address decoding using 74LS138.

DMA Controller to CPU interface diagram



D0₁₅ - D15₂

A₀ - A₃ There are 4 pins in this memory controller
of this data transfer for CPU side.

A₄ - A₇ There are also 4 pins in this memory controller.

$\overline{CS} \rightarrow$ Cascade style.

$\overline{MEMR} \rightarrow$ Memory Read. It had to transfer data from Memory to I/O device.

$\overline{MEMW} \rightarrow$ Memory Write. It had transfer data from I/O device to memory.

$\overline{IOW} \rightarrow$ Interrupt Write. It had transfer data from memory to I/O device.

$\overline{IOP} \rightarrow$ Interrupt Read. It had transfer data from I/O device to memory.

Answer to the Q no - 05 (a)

Difference between Computer and Microcontroller
is given below.

Computer	Micro-Controller
1. Contains CPU.	1. Contains CPU.
2. It has RAM.	2. It has SRAM.
3. It has serial and Parallel Port.	3. It has only Serial Port.
4. Contains ROM.	4. Contains EPROM.
5. Can interface device and various types of file.	5. Only control various devices.
6. It cost high power.	6. It cost low power.

Answer to the Q no - 01(a)

Difference between 80186 and 8086 micro-Processor.

Intel 8086

- Year of introduction 1978.
- 16 bit Mp
- Data Bus width of 8086 is 16-bit.
- 1 MB main Memory.
- 400 ns clock cycle time.
- Other interrupt include more register and additional instructions.

Intel 80186

- Year of introduction 1982
- 16-bit of mp updated version of 8086.
- 1 MB Main Memory.
- Contained special Hardware like Programmable Counter, Interrupt Controller etc.
- Never used in the Pc

Segment register :

→ CS (Code segment) : a section of memory that holds the code used by a Mp.

→ DS (Data segment) : a section of memory that contains most data used by a Program.

→ ES (Extra segment) : an additional data segment that is used by some of string instructions to hold.

→ SS (Stack segment) : defines the area of memory used for the stack.