Question [1]

micro_processor: General purpose processor contains no RAM, ROM & No I/o ports, can't operate without adding them externally

micro_controller: single specific purpose chip contains cpu, fixed amount of I/o ports, RAM, ROM used to control embeded systems

Embedded sys: special purpose computer

Mechtronic sys: sys in which Mechanical hardware are integrated with information

n_bit processor:
- processor works only on n-bit of data at time
- Data larger than n-bit should be broken into n_bit pieces

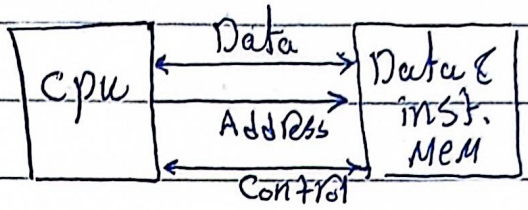
Question [2]

Micro_processor	Micro_controller
- General purpose	- special purpose
- Contains no Ram, no ROM, No I/o ports	- Contains I/o ports, ROM, RAM
- RAM, ROM, I/o ports Added externally	- can't add any external peripherals to it
- it's sys are versatile	- ideal for critical app

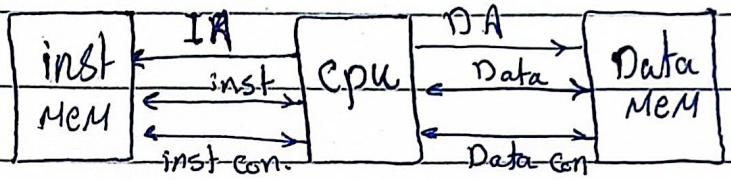
Question 3

Von_neumann:

. single Memory store Data & inst.
. single bus fetch inst. or store data.



. Harvard:



. separate MEM for inst. &another to data
. one bus connects cpu to RAM &another connects cpu to ROM

Question 4

1_ PROM: user programmable, information burned into it once

2_ EPROM: Can be programmed & Erased by UV Ray

3_ E^2PROM: erasable with electrical, can erase 1 byte.

4_ Flash: Enhanced version of E^2prom, Mostly used

5_ MASK ROM: not user programmable, programmed by manufacture
_cheaper kind of OTP

Question [5]

1) SRAM: - cells Made from flip-flops, don't require refresh
- fast - require 6 tr

2) DRAM: - cells Made from capacitors, require refresh
- cheaper than SRAM

3) NV RAM: - allow cpu to Read & write
- the contents not loss due to power off
- Another type combine between E^2prom & SRAM

Question [6] BoM is Read only MeM since cpu doesn't have the capability to write on it

- it May be written by external device.

Question [7]

Type	Volatile?	Writable?	Erase size	Speed
SRAM	Yes	Yes	Byte	fast
DRAM	Yes	Yes	Byte	Moderate
Masked	No	No	-	fast
prom	No	once	-	fast
Eprom	No	Yes	Entire chip	Fast
E^2prom	No	Yes	Byte	fast to read, slow to write
Flash	No	Yes	sector	" " " " " "
NVRAM	No	Yes	Byte	fast