Q1)

Micro-Processor :- Processor didn't have RAM, ROM and i/o Ports and it's amust to add them to operate it.

Micro-Controller :- a chip Contains MPC or CPU and RAM, ROM also i/o Ports and other PERPHIRALS.

Embedded systems :- A system Controlled by a Special Computer "Micro-Controller".

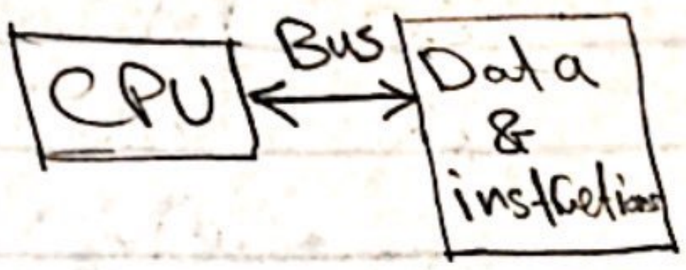
Mechatronic system :- Integration between mechanical and electronic systems.

n-bit Processor :- Processor works for n-bit of Data with n-bit instructions and if Data larger than (n) it will broken down to (n).

Q2)

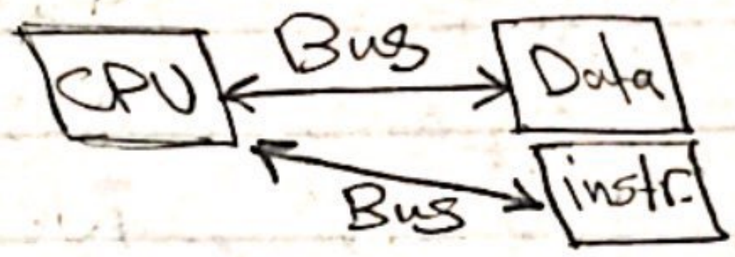
	Micro-Processor	Micro-Controller
	general purpose	Specific purpose "include MPU"
	RAM, ROM, i/o doesn't exist.	exist
Adv :-	Modular and can be customized by designer by choosing size of RAM, ROM and PERPHIRALS.	Ideal for systems in which Cost, Space and Power are critical.
DisAdv :-	More expensive as RAM ROM and I/O are added externally.	Designer can't add externally same for i/o, RAM, ROM, Timers and so on.

Q3) Von-Neuman



* Single bus for Data and instruction
* Single memory
* Used in computers

Harvard Arch.



* two Buses for Data and instructions.
* Separate memories.
* used in MCU's.

Q4) PROM → one time Programmed by user
EPROM → Can be Programmed more than one time and erased by u
EEPROM → Programmed multiple times and erased electrically.
Flash → Programmed and Erased Electrically with feature of specific data Erase.
Masked Rom → Programmed once by IC manufacturer.

Q5) SRAM → Based on flipflops "6 transistors" doesn't require Refreshing
DRAM → Based on Capacitor & 1 trans and it require Refreshing to keep data.
NV-RAM → SRAM + Battery } To keep data when there is
SRAM + EEPROM } no voltage input.

Q6) CPU doesn't have the capability to write to ROM
But it can be write on it by external device
eg. CDROM Burner.

Q7)

Type	Volatile?	Writable	Erase Size	Erase Cycles	Cost	Speed
SRAM	yes	yes	Byte	∞	Expensive	fast
DRAM	yes	yes	Byte	∞	Moderate	Moderate
Masked ROM	No	No,	—	—	Cheap	fast
PROM	No	once by user	—	—	Moderate	fast
EPROM	No	yes, by user	Entire Chip	limited	Moderate	fast
EEPROM	No	yes	Byte	limited	Expensive	fast R slow W
Flash	No	yes	sector	limited	Moderate	fast R slow W
NVRAM	No	yes	Byte	∞	Expensive	fast