Unit_6/ Lesson_1

Assignments

Question n_1 :-

The meaning of :-

1- **Microprocessor** : is an integerated circuit which can perform arithmatic and logical operations. It only consist of CPU and generally used for general computing like PCs.

2- **Micro controller** :. is also an IC which consist of CPU and other component like RAM, ROM and i/o ports.
It is an extension of the microprocessor.
It is used in Embedded systems.

3- **Embedded Systems**:- is special purpose computer system which can perform one or few dedicated functions, often with real time computing constraints.
It is used in many devices that we used in our daily life.
It is usually embedded as a part of complete device which include a hardware and mechanical parts.

4- **Mechatronic Systems** : consists of by definition of mechanical parts that has to perform certain motion and an electrical parts (in many cases an embedded systems) that add intelligence to the system.

5- **n-bit processor** : n-bit CPU means that its ALU operates on n-bits word (usually per clock cycle).
data

for example : Saturn used for HP calculators processes nibbles, it's a 4-bit CPU and with 64-bit data register and 20-bit address register.

Question no. 2 :-

* Comparison between Microprocessor and Microcontroller.

Microprocessor	Microcontroller
- It is an Integerated circuit	- It is an Integerated circuit
- It consists of CPU only	- It consists of CPU and another components like ROM, RAM, i/o ports.
- It is used in personal computer	- It is used in Embedded systems.
- It can do many different tasks depending on Programming.	- It can perform one or few dedicated functions.

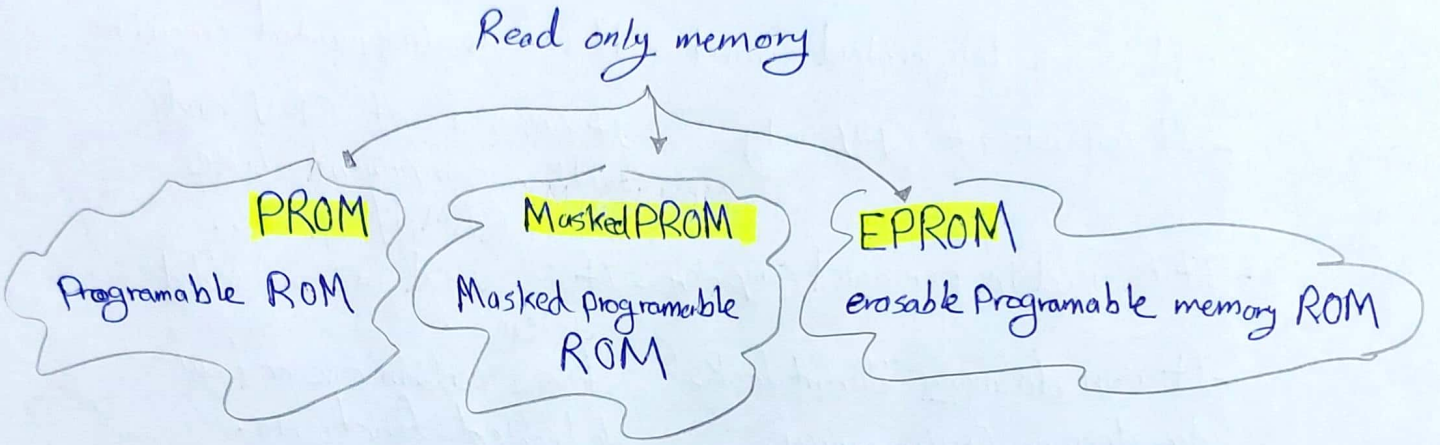
Question no. 3 :-

* Comparison between Von-Neuman and Harvard.

Von-Neuman	Harvard.
- It is a type of ~~Computer~~ bus	- It is a type of bus
- It's architecture is using one bus between CPU and memory.	- It's architecture is using two separate busses for two separate memory (data & instruc).
- The data and instructions shared the same memory.	- Has a separate memory for data and instructions.
- CPU cannot access program memory and data memory at the same time.	CPU can access data and instruction memory simultinously
- ~~Low~~ affect performance of the system.	- High performance.

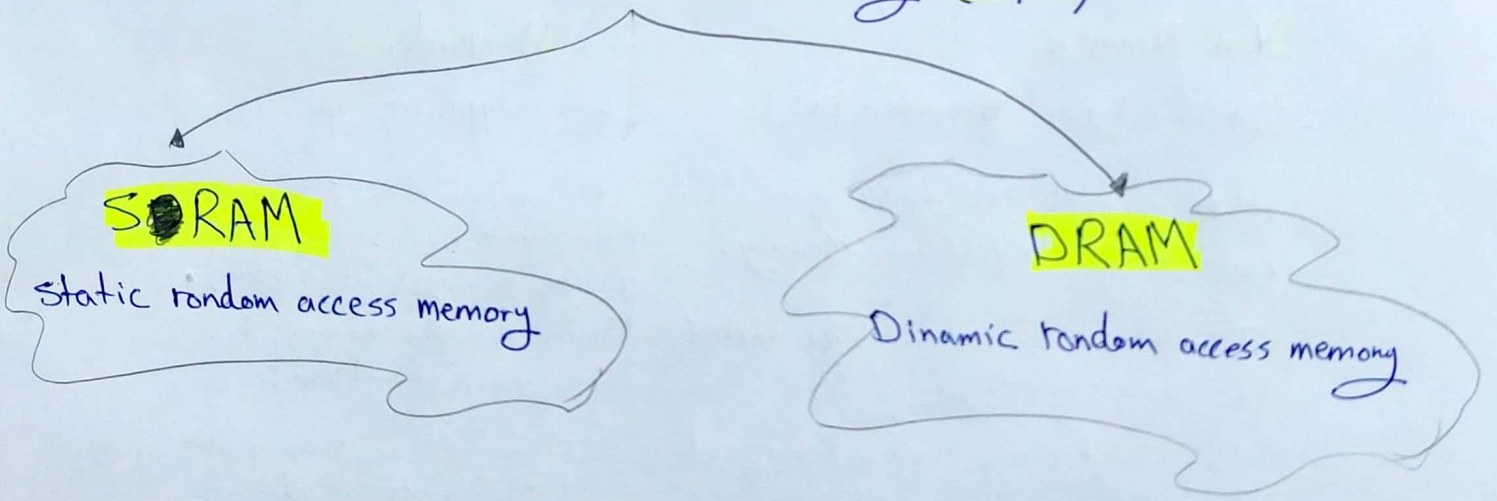
Question no. 4 :-

The type of ROM :



Question no. 5 :

The type of RAM :



Question no. 6 :

* ROM is Read only memory although we can write on it because :
  - The main purpose of using ROM is to keep main programe secure. so there is types of ROM you can write on it once only. for example : Bios code.

Question no. 7 :

Type	Volatile?	Writable	Erase size	Max erase size	Cost per byte	speed
PROM	non-volatile	only once	no	—	cheap	slow
Masked-PROM	non-volatile	only once	no	—	cheap	slow
EPROM	non-volatile	yes	yes	forced all	cheap	slow
EEPROM	—	yes	yes	flexible a	expensive	medium
Flash	—	yes	yes	flexible	medium cost	fast
NVRAM	Volatile	yes	yes	flexible	very expensive	fast
SRAM	Volatile	yes	yes	flexible	very expensive	fast
DRAM	Volatile	yes	yes	flexible	medium cost	medium