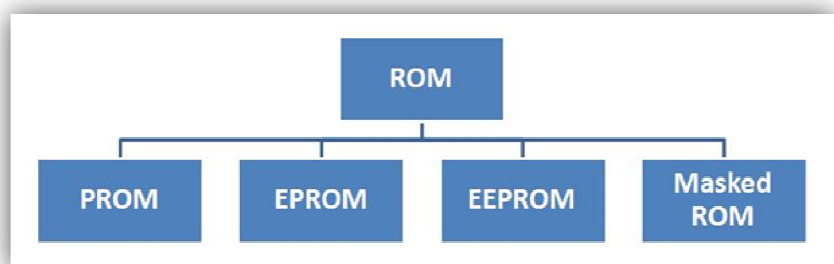


ROM: Read-only memory (ROM) is a type of storage medium that permanently stores data on personal computers (PCs) and other electronic devices. It contains the programming needed to start a PC, which is essential for boot-up; it performs major input/output tasks and holds programs or software instructions.

Because ROM is read-only, it cannot be changed frequently; it is permanent and non-volatile.

Classification of ROMs:

1. P ROM
2. EP ROM
3. EEP ROM
4. Masked ROM



Programmable Read-Only Memory (P ROM): This form of ROM is initially blank. The user or manufacturer can write data/program on it by using special devices. However, once the program or data is written in PROM chip, it cannot be changed. If there is an error in writing instructions or data in PROM, the error cannot be erased. PROM chip becomes unusable

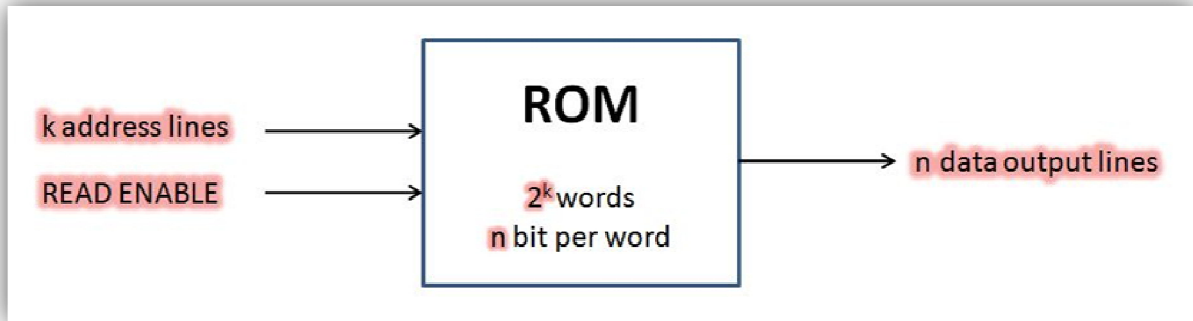
Erasable Programmable Read-Only Memory (EP ROM): This is programmed with the use of very high voltages and exposure to approximately 20 minutes of intense ultraviolet (UV) light.

Electrically-Erasable Programmable Read-Only Memory (EEP ROM): This is used in many older computer BIOS chips, is non-volatile storage that can be erased and programmed several times and allows only one location at a time to be written or erased. An updated version of EEPROM is flash memory; this allows numerous memory locations to be altered simultaneously.

Masked Read-Only Memory (Masked ROM): This kind of ROMs is permanent and hence can never be reprogrammed.

ROM Architecture: A ROM is a memory of size $2^k \times n$ bits with 2^k words each of n -bit size. For proper READ operation, a ROM is equipped with three important connections. These are:

- n -data output lines.
- k -address lines.
- One READ ENABLE.



Read Operation from ROM: Read operation from a RAM is accomplished by the following steps:

1. Put the address on ADDRESS LINES
2. Enable READ ENABLE LINE

Assignments:

1. Differentiate between RAM and ROM.
2. Draw a clear-cut diagram of ROM architecture.