Pratyush Taiswal
18EE30021

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Q1.

25LC256

It is a CMOS 256k bit electrically Programmable Read Only Memory (EEPROM). The device is organised as 32k words by 8 bits (32k bytes). Accessing individual bytes from an address transition or from power up (chip enable pin going low) is accomplished in less than 90 ns. This very high speed device allows the most sophisticated micro-processors to run at full speed without the need of WAIT states.

Features:

→ High Speed performance
→ CMOS Technology for low power Consumption
  - 20 mA Active Current
  - 500 μA Standby Current
→ Auto-insertion-compatible plastic packages
→ Separate chip enable and output enable controls.
→ High Speed "express" programming algorithm.

And more,

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SSD Specifications:

A SSD is a solid state storage devices that uses integrated circuit assemblies to store data persistently, typically usually flash memory and functioning as secondary storage in the hierarchy of computer storage. It is also sometimes called a solid state drive and a solid state disk.

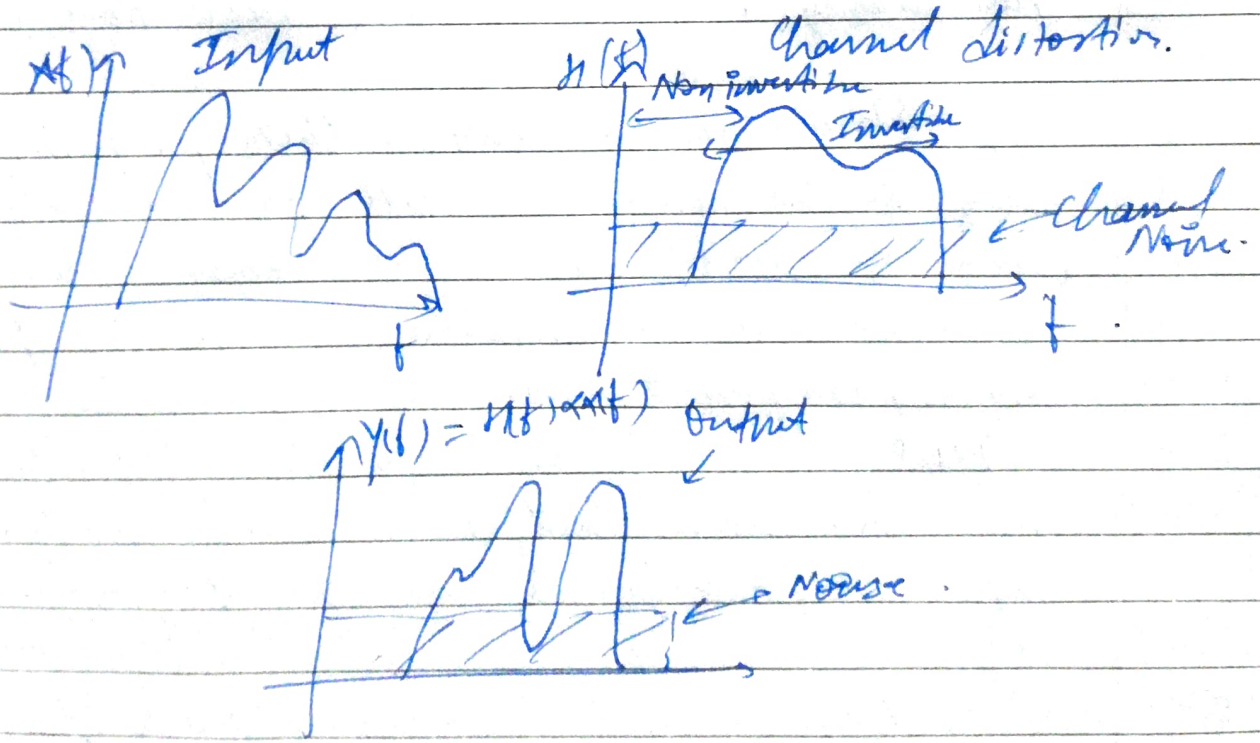
Compared with electromechanical devices, SSDs are typically more resistant to physical shock, run silently and have quick access time & latency.

SSD storage devices vary in their properties according to the number of bits stored in each cell, with Single-bit cells "SLC" being generally the most reliable, durable, fast and expensive type, compared with 2 & 3 bit cells "MLC" & "TLC" and finally QLC being used for devices that don't require much extreme properties & are the cheapest.

SSDs have a limited number of writes, and go bad as they reach storage capacity.
SSDs are available upto 100TB but HDDs of upto 16TB only available.

Q2. On propagating through a channel, signals are shaped and distorted by the frequency response and the attenuating characteristics of the channel. There are two main manifestations of channel distortions :- Magnitude & Phase distortion.

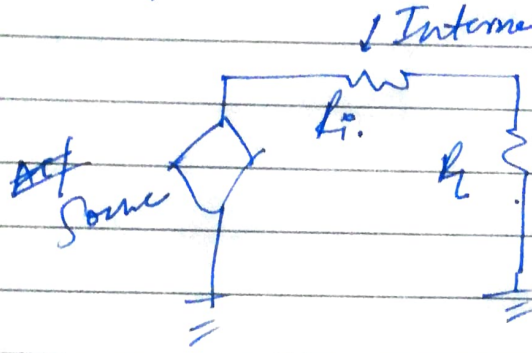
Channel distortions can degrade or even severely disrupt a communication process, and hence channel modelling & equalization are essential components of modern digital communication systems.



Q3: Impedance Matching:

It is the process of making one impedance look like another. Frequently, it becomes necessary to match a load impedance to the source or internal impedance of a driving source.

The concept behind is the maximum power transfer theorem.



Maximum power is transferred from a source to a load when $R_L = R_i$

Any device

Any electronic device that increases the power of an electrical signal whose vibrations are confined to the audio frequency range - that range which can be perceived by human ear - is an audio amplifier. Acoustic sound waves are longitudinal waves. A sound is said to be in the audio frequency range if it is not too high or low in frequency to be heard by ear. This is why for amplifications, audio amplifier is used.

Ans =

A freeze frame is a snapshot of data from a number of sensors & components at the time when the fault was detected.