

\* Multiplexer - connects one of the multiple i/p @ o/p so, it act as parallel to serial converter.

\* Analog to digital converter - It converts the analog i/p into its equivalent digital o/p

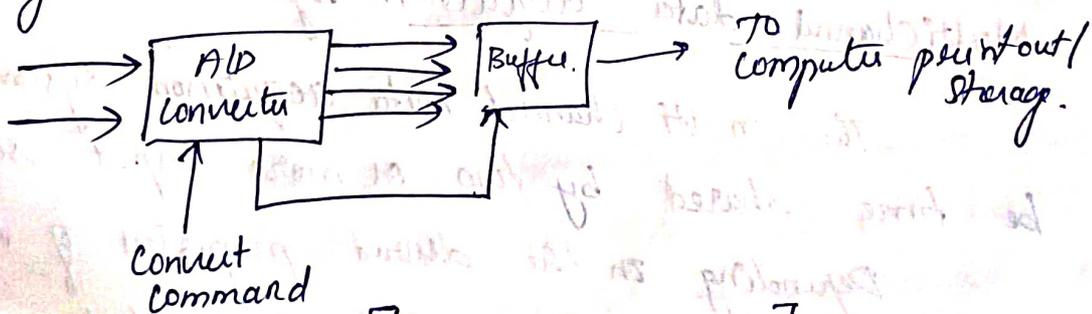
\* Display device - It displays the data in digital format.

\* Digital Recorder - It is used to record the data in digital format.

### Single channel data acquisition system:

A single channel data acquisition system consists of a signal conditioner followed by an analog to digital (A/D) converter, performing sequential conversions at a free running, internally determined rate.

The outputs are in digital code words including over range indication, polarity information and a status output to indicate when output digits are valid.



### [Single channel DAS]

The digital outputs are further fed to a

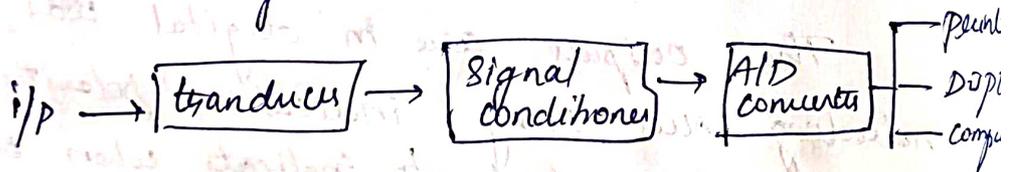
Storage (or printout) device, or to a digital computer device, or to digital computer for analysis. eg: Digital panel meter.

However, there are two major drawbacks in using it as a DAS.

1. It is slow and the BCD has to be changed into binary coding, if the o/p is to be processed by digital equipment.

2. While it is free running, the data from the A/D converter is transferred to interface register at a rate determined by DPM itself, rather than commands beginning from the external interface.

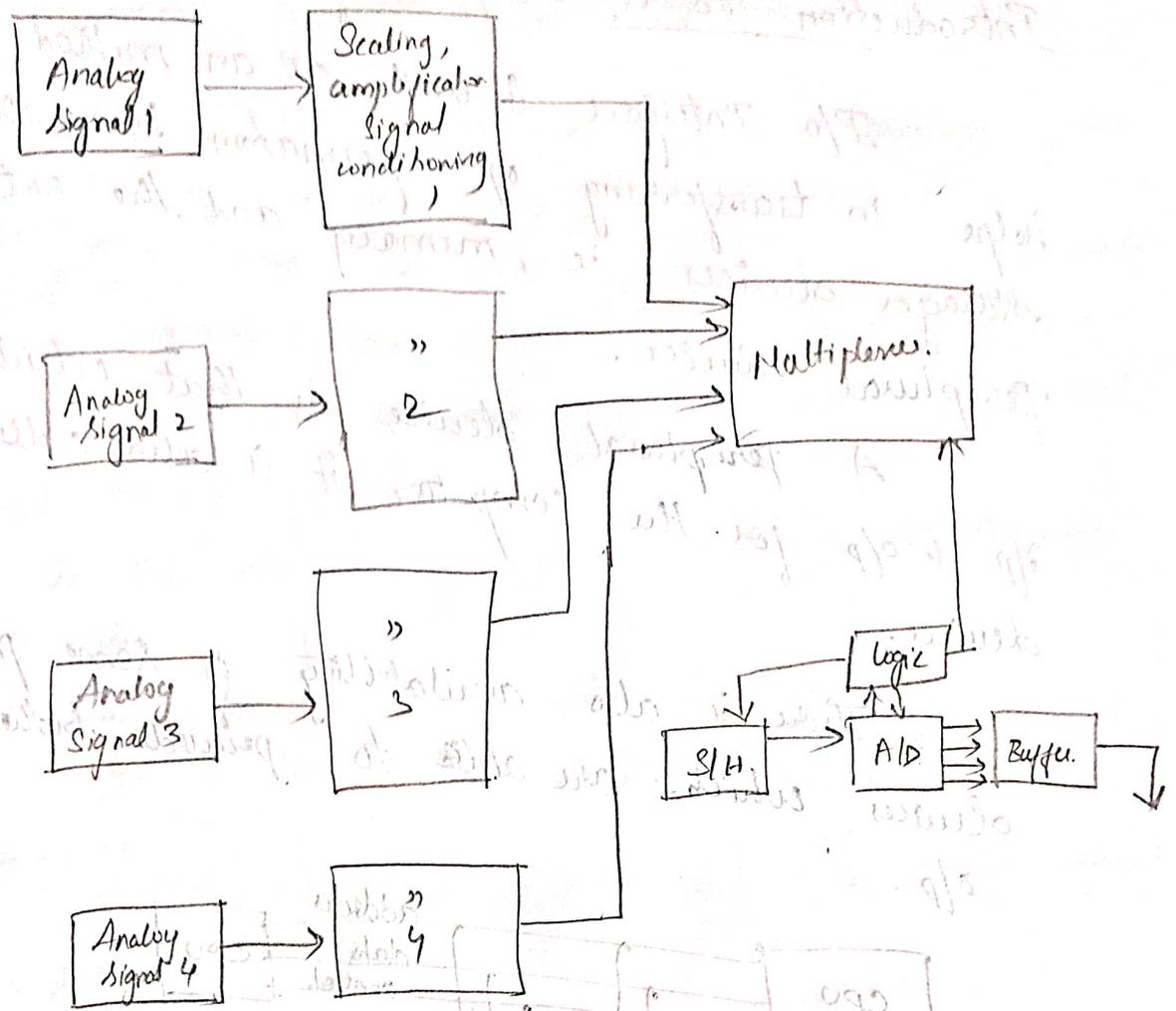
### Single Channel DA



### Multi-channel data acquisition system:

The multi channel data acquisition system can be time shared by two or more input sources.

Depending on the desired properties of the multiplexed system, a number of techniques are employed for such time shared measurements.



### [Multi-channel DAS]

- \* The individual analog signals are applied directly or after amplification and/or signal conditioning whenever necessary, to the multiplexer.
- \* These are further converted to digital signals by the use of A/D converter.
- \* For the most efficient utilization of time, the multiplexer is made to seek the next channel to be converted while previous data stored in sample hold is converted to digital form.