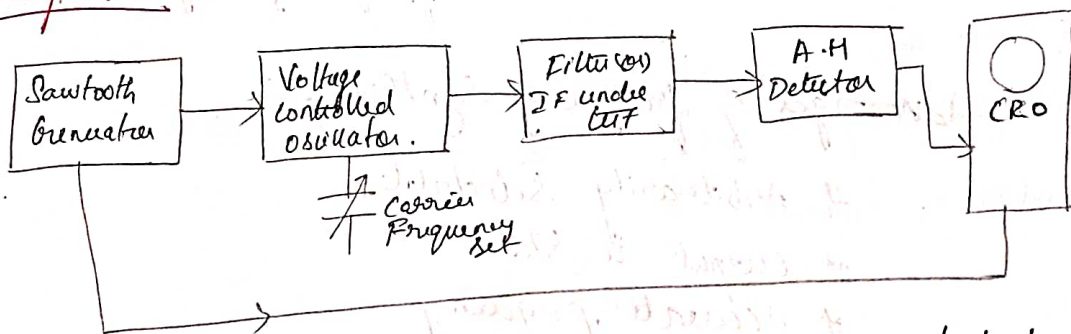


## Signal Generator:

- A signal generator also known variously as function generator, pitch generator, digital pattern generator or frequency generator is an electronic device that generates repeating or non-repeating electronic signals.
- Generally used in designing, testing, troubleshooting and repairing electronic, though they often have artistic uses as well.
- There are many different types of signal generators with different purposes and applications.
- Traditionally signal generators have been embedded hardware units.

## Sweep Generator:

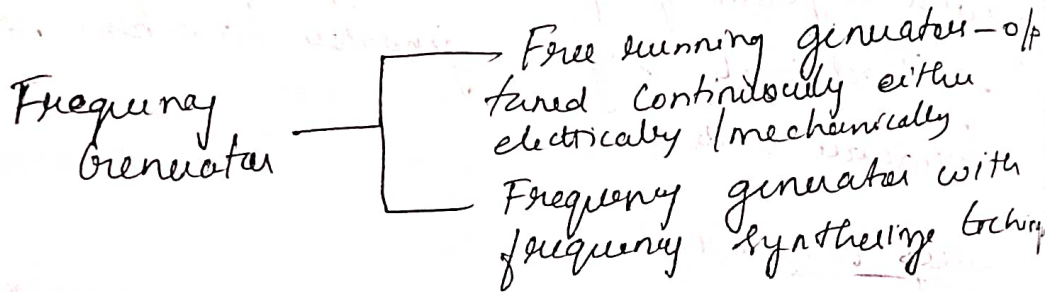


- A low frequency sawtooth wave is generated from some form of oscillator or waveform generator. The instantaneous voltage of sawtooth wave controls the frequency of an RF oscillator with its center frequency set at the center frequency of device under test.
- Over a single sweep frequency, RF o/p voltage from the device, as function of time, is a plot of filter response.

- By Rectifying and RF filtering in a simple AM detector, the output is coupled connected to a DC Voltage Varying as a function of time and this Voltage is applied to vertical i/p of CRO.

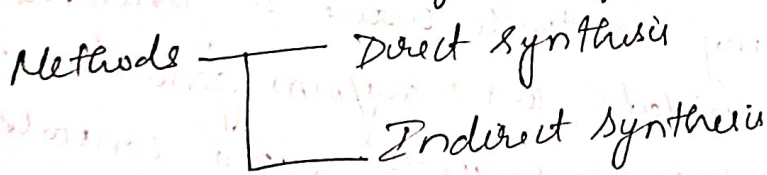
- By synchronising the sweep of CRO with a sawtooth output, the device response is plotted on the CRO screen.

### Frequency Synthesizer:



### Advantages of frequency synthesizer:

- \* Arbitrarily selectable
- \* output is stable
- \* Accurate frequency.



#### Direct

- \* use a technique of directly deriving o/p freq. from ref. freq.
- \* It uses freq. dividers, multipliers, mixers and bandpass
- \* more accurate & stable o/p.

#### Indirect

- \* o/p freq is given to VCO
- \* The phase detector provides an analog o/p.
- \* The crystal oscillator is freq range of 1 MHz to 10<sup>10</sup>
- \*  $F_o = N \cdot F_r$
- $F_o$  - o/p freq
- $F_r$  - reference freq