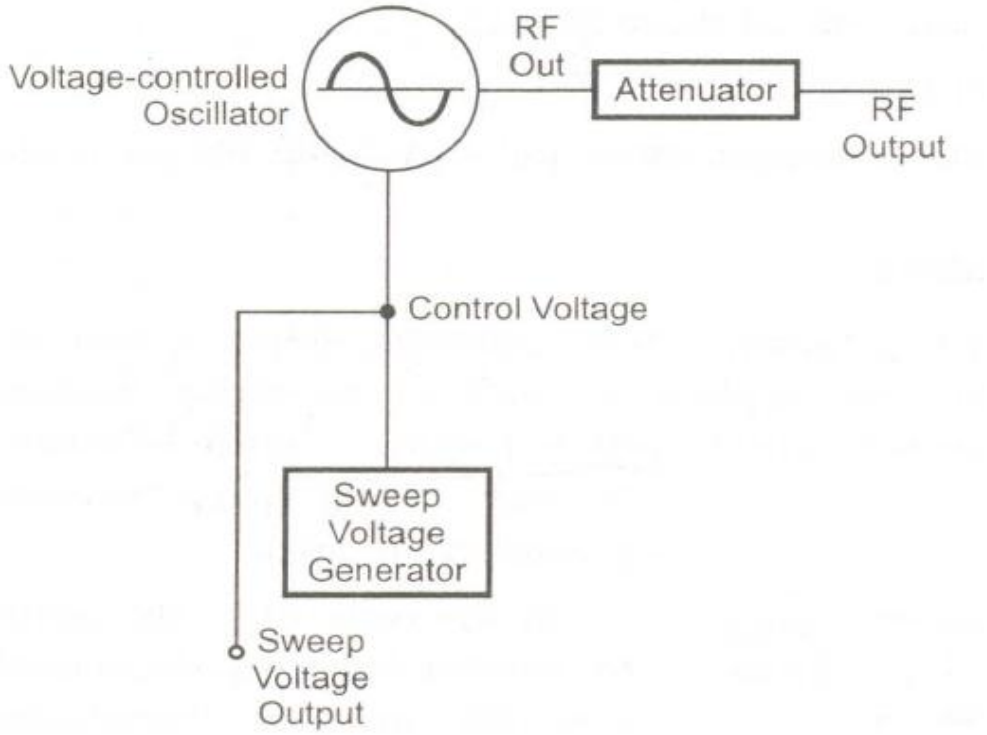
SWEEP-FREQUENCY GENERATORS

The sine wave generator discussed in earlier sections generates output voltage at a known and stable frequency.



The development of solid state variable capacitance diode (varicap diode) helps in building sweep frequency genera tors. These are extensively used than any other electronic devices. These varicap diodes provide the method of electronically tunning an oscillator. The block diagram of simple sweep frequency generator is as shown in Fig

The sweep generator is very much similar to the simple signal generator. Tn the simple signal genera tor, an oscilla tor is tuned to fixed single frequency.

Tn the sweep generator, an oscillator is electronically tuned and by using voltage controlled oscillator variable frequency is obtained. As name indicates, a sweep voltage generator provides voltage, known as control voltage, to the voltage controlled oscillator (VeO). The function of voltage controlled oscillator is to provide various frequency sweeps according to voltage provide by sweep voltage generator.

Frequency Synthesizers:

The frequency generators are of two types.

1. One is free running frequency generators in which the output can be tuned continuously either electronically or mechanically over a wide frequency range. The generators discussed uptill now are of this type.
2. The second is frequency generator with frequency synthesis technique. The synthesis means to use a fixed frequency oscillator called reference oscillator or *clock* and to derive the wide frequency range in steps from the ou tpu t of the reference oscilla tor.

The stability and accuracy of free running frequency generator is poor while frequency synthesizers provide output which is arbitrarily selectable, stable and accurate frequency. The reference oscillator used in frequency synthesizers is generally precision crystal oscillator with an output at some cardinal frequency such as 10 MHz. Various signal processing circuits then operate in synchronism to provide a large choice of the output frequencies.