

- Q)The time constant of a mono-stable multivibrator--> **$T=1.1RC$**
- Q)For an FSK generator 555 timer can be used as--> **Astable MV**
- Q)For a Schmitt trigger circuit the upper comparator voltage is--> **$2/3V_{CC}$**
- Q)What is the signal at pin 7 of 555 timer--> **Discharge**
- Q)The time constant of a astable multivibrator--> **$(R_A + R_B) C$**
- Q)50 % duty cycle can achieved in astable when--> **$R_A = 0$**
- Q)What is the amplitude of the trigger that should be given to the mono-stable multivibrator--> **$1/3 V_{CC}$**
- Q)A linear ramp can be generated from a mono-stable multivibrator by replacing R with--> **constant current source**
- Q)What is the signal at pin 1 of 555 timer--> **Ground**
- Q)VCO is a--> **Astable MV**
- Q)A digital phase detector uses ----- for phase detection.--> **XOR Gate**
- Q)Perfect locked condition in a VCO is obtained when--> **$f_s = f_0$**
- Q)What is the signal at pin 5 of 555 timer--> **Control Voltage**
- Q)What is the signal at pin 8 of 555 timer--> **V_{CC}**
- Q)What is the signal at pin 2 of 555 timer--> **Trigger**
- Q)What is the signal at pin 3 of 555 timer--> **Output**
- Q)VCO IC no is--> **566**
- Q)----- filter controls capture range and locked range of PLL--> **low filter**
- Q)Which of these is true--> **Lock in range > capture range**
- Q)For a frequency multiplication VCO output frequency f_0 ---> **nf_s**
- Q)For frequency division VCO output frequency f_0 ---> **f_s/n**
- Q)The capture frequency of VCO depends upon the choice of--> **All of The Above**
- Q)PLL IC no is--> **565**
- Q)What is the signal at pin 5 of 566 VCO--> **Modulation input**
- Q)What is the signal at pin 8 of 566 VCO--> **Vcc**
- Q)What is the signal at pin 4 of 565 PLL--> **VCO Output**
- Q)What is the signal at pin 5 of 565 PLL--> **VCO input**
- Q)What is the signal at pin 7 of 566 VCO--> **C_T**
- Q)What is the signal at pin 6 of 566 VCO--> **R_T**
- Q)What is the signal at pin 3 of 566 VCO--> **Square wave output**
- Q)What is the signal at pin 4 of 566 VCO--> **Triangular wave output**
- Q)Which one of these is not in the block schematic of PLL--> **A VCO**
- Q)Which one of these is not the type of phase detector--> **EX-NOR**
- Q)Which block is used in PLL to control dynamic characteristics of PLL--> **Low pass filter**
- Q)Which block is used in PLL to find phase difference between the input and VCO frequencies--> **Phase detector**
- Q)What is the signal at pin 8 of 565 PLL--> **External resistor**
- Q)What is the signal at pin 9 of 565 PLL--> **External capacitor**
- Q)What is the signal at pin 7 of 565 PLL--> **Demodulated output**
- Q)What is the signal at pin 10 of 565 PLL--> **V_{CC}**
- Q)555 timer can source and sink--> **200mA**
- Q)Which one among these is an application of 555 timer--> **all of the above**
- Q)What is the other name of one-shot multivibrator--> **Mono-stable**
- Q)What is the other name of free running multivibrator--> **Astable**
- Q)NE555 is designed for the operating temperature--> **0° to $+70^\circ$**
- Q)SE555 is designed for the operating temperature--> **-55° to $+125^\circ$**
- Q)Which block is used in PLL to generate an output frequency that is directly proportional to input voltage.--> **A VCO**
- Q)PLL s can be used as--> **FM demodulator**
- Q)Crystal filters are commonly used for--> **Radio frequencies**
- Q)Why inductors are not used in audio frequencies--> **Emit magnetic fields**
- Q)Choose the following which is advantage of an active filter over passive filter--> **less cost**
- Q)What is the active element in active filters--> **Op-Amp**

- Q)RC filters are commonly used for--> **Low frequencies**
- Q)LC filters are commonly used for--> **Radio frequencies**
- Q)Square wave oscillator is designed using--> **Astable**
- Q)Frequency Divider is designed using--> **Mono-stable**
- Q)For wide band pass filter Q-factor is--> **less than 10**
- Q)As the bandwidth increases Q-factor is--> **decreases**
- Q)The Central Frequency f_0 for a wide band pass filter is--> $\sqrt{f_l \cdot f_h}$
- Q)For the second order low pass filter the roll of rate is--> **40 dB/decade**
- Q)Frequency response of filter reaches ideal characteristics as order of filter--> **increases**
- Q)For narrow band pass filter Q-factor is--> **greater than 10**
- Q)High speed op-amps have--> **High slew rate and High unity gain band widths**
- Q)Which of these filters is also called as flat-flat filter--> **Butterworth filter**
- Q)For high pass filter the stop band is in the range of--> $0 < f < f_L$
- Q)Bandwidth of band pass filter is equal to--> $f_H - f_L$
- Q)For low pass filter the stop band is in the range of--> $f > f_H$
- Q)For high pass filter the pass band is in the range of--> $f > f_L$
- Q)For the first order low pass filter the roll of rate is--> **20 dB/decade**
- Q)For low pass filter the pass band is in the range of--> $0 < f < f_H$
- Q)In narrow band pass filter the op-amp is used in--> **inverting mode**
- Q)How many feedback paths are there in narrow band pass filter--> **2**
- Q)For all pass filter if $R = 15.9 \text{ K}\Omega$, $C = 0.01 \mu\text{F}$ and find the phase angle if the input frequency is 1KHz--> **-90°**
- Q)Narrow band-rejection filter can be called as--> **Notch filter**
- Q)The T network used in narrow bandreject filter has--> **2 resistors and 1 capacitor**
- Q)The twin T network used in narrow bandreject filter has--> **4 resistors and 2 capacitor**
- Q)What is the resistance of a notch filter if its f_N is 60 Hz and $C = 0.068 \mu\text{F}$ --> **$39.01 \text{ K}\Omega$**
- Q)For the first order low pass active filter $|H(j\omega)|$ is--> **$0.707A_0$**
- Q)For the first order low pass active filter A_0 is--> **$1 + R_f / R_1$**
- Q)As order of filter increases its accuracy will also--> **decreases**
- Q)Design a low-pass filter at a cut off frequency $f_H = 1\text{KHz}$, with pass band gain of 2--> **$R = 15.9\text{K}\Omega$, $C = 0.01\mu\text{F}$, $R_1 = 10\text{K}\Omega$, $R_f = 10\text{K}\Omega$**
- Q)If $R_2 = R_3 = 33.86\text{K}\Omega$, $C_2 = C_3 = 0.0047 \mu\text{F}$ for a second order low pass filter what is its cut off frequency f_H ?--> **1 K Hz**
- Q)Higher order filters can also be formed by--> **using first and second order filters**
- Q)As order of filter increases its size will also--> **increases**
- Q)The Q of an active filter can be found by--> **f_0/BW**
- Q)Band width of a filter can be defined as--> **$f_h - f_l$**
- Q)When signals are transmitted through transmission lines, if there is phase change. Which type filter is used here for phase correction--> **all pass filter**
- Q)In frequency scaling what is the preferable method--> **variable resistor value and fixed capacitor**
- Q)Frequency scaling means a procedure to--> **varying cut off frequency**
- Q)All pass filters are used for--> **phase correction**
- Q)In all pass filters--> **$R_f = R_1$**
- Q)Which filter is best suitable for audio filters--> **Butterworth**
- Q)A/D converter usually placed after--> **Sample & Hold**
- Q)In second order low pass filter the flattest pass band occurs when--> **$\alpha = 1.414$**
- Q)For wide-band pass filter $f_l = 400\text{Hz}$, $f_h = 2 \text{ KHz}$ then what is the value of Q of the filter--> **0.56**
- Q)For wide-band pass filter $f_l = 400\text{Hz}$, $f_h = 2 \text{ KHz}$ then what is the value of central frequency f_0 of the filter--> **894**
- Q)For a notch filter if $C = 0.1\mu\text{F}$ and $R = 31.8\text{K}\Omega$ find the value of cut off frequency--> **50Hz**
- Q)In second order low pass filter if the damping coefficient α is reduced too much then--> **filter becomes oscillatory**
- Q)Servo tracking A/D converter has--> **up & down counter**
- Q)Counter type A/D converter has--> **binary counter**
- Q)Servo tracking A/D converter is not preferable for analog signals--> **abrupt change in**

- Q)In weighted resistor DAC as no of bits increases resistors required--> **increases**
- Q)For a 3 bit Flash A/D converter no of op-amps required--> **8**
- Q)In a Counter type A/D converter step size is--> **LSB/4**
- Q)No of comparators required for n-bit flash drive converter--> **2^n**
- Q)Which A/D converter changes analog voltage into frequency--> **Dual Slope**
- Q)Dual slope A/D converter is preferable for--> **noise reduction**
- Q)Minimum time interval between samples in a counter type A/D converter, where n is no of pulses--> **nT sec**
- Q)Conversion time of a counter type A/D converter is--> **$2^n - 1$**
- Q)Conversion time of a flash type A/D converter is--> **1**
- Q)Conversion time of a successive approximation A/D converter is--> **n**
- Q)Which one of the following is an indirect manner of A/D conversion--> **Dual Slope**
- Q)How many different resistors are required for a 4 bit R-2R D/A converter--> **2**
- Q)How many different resistors are required for a 4 bit weighted resistor D/A converter--> **4**
- Q)The slowest A/D converter is--> **Dual Slope**
- Q)The fastest A/D converter is--> **Flash type**
- Q)Integration time period of dual slope A/D converter--> **$T * 2^n$**
- Q)For more no of bits, which D/A converter is preferable--> **R-2R**
- Q)For 8-bit weighted resistor DAC the largest resistor is .. if the smallest resistor is $2.5K\Omega$ --> **$320 K\Omega$**
- Q)The chip SR/NE 5018 is a--> **8 bit DAC with voltage output**
- Q)For 12-bit weighted resistor DAC the largest resistor is .. if the smallest resistor is $2.5K\Omega$ --> **$5.12 M\Omega$**
- Q)In successive approximation A/D converter the conversion time is clock periods--> **n**
- Q)The resolution of A/D converter is given by .--> **$V_{fs}/(2^n-1)$**
- Q)For 8-bit weighted resistor DAC the largest resistor is .. times the smallest resistor--> **128**
- Q)For 7-bit weighted resistor DAC the largest resistor is .. times the smallest resistor--> **64**
- Q)What output voltage would be produced by a 2-bit D/A converter whose output range is 0 to 10 V and whose input binary number is 00--> **0 V**
- Q)A DAC which uses a varying reference voltage is called a--> **Multiplying DAC**
- Q)What output voltage would be produced by a 2-bit D/A converter whose output range is 0 to 10 V and whose input binary number is 01--> **2.5 V**
- Q)The chip MC 1408L is a--> **8 bit DAC with current output**
- Q)What output voltage would be produced by a 2-bit D/A converter whose output range is 0 to 10 V and whose input binary number is 10--> **5 V**
- Q)What output voltage would be produced by a 4-bit D/A converter whose output range is 0 to 10 V and whose input binary number is 0110--> **3.75 V**
- Q)What output voltage would be produced by a 2-bit D/A converter whose output range is 0 to 10 V and whose input binary number is 11--> **7.5 V**
- Q)For a 2 bit Flash ADC how many comparators are required--> **3**
- Q)For a 3 bit Flash ADC how many comparators are required--> **7**
- Q)Most Expensive ADC is--> **Flash Type**
- Q)The disadvantage of binary weighted type DAC is--> **All of the above**
- Q)The advantage of R-2R DAC is--> **it uses only 2 resistor**
- Q)If an application require more conversion speed, then which type of ADC should be used--> **Successive approximation**
- Q)If an application require more accuracy, then which type of ADC should be used--> **Integrating type**
- Q)The resolution of a DAC/ADC is--> **the value of LSB**
- Q)The ADC 0800 chip is a--> **8 bit ADC**
- Q)The ICL 7109 chip is which type of ADC--> **Dual-Slope type**
- Q)For a n bit Flash ADC how many comparators are required--> **$2^n - 1$**
- Q)In flash ADC the number of comparators for each added bit--> **doubles**
- Q)The AD7592 chip is which type of ADC--> **Successive approximation**
- Q)Sample and hold circuit is required in which type of ADC--> **Integrating type**