

Q=QUESTION	question description
A=ANSWER	answer description
Q	How to solve start up problem of supply independent biasing?
A	By adding diode connected device
A	By adding additional current mirror circuit
A	By adding resistor in path
A	By adding cascode in path
Q	What is disadvantage of supply independent biasing?
A	it is not depends on supply voltage
A	it is depends on process and temperature
A	it is depends on humidity and temperature
A	it is bulky circuit
Q	Why PMOS device suffer from lower current drive capability?
A	conductivity of holes is less than conductivity of electron
A	speed of holes is less than speed of electron
A	Mobility of holes is less than mobility of electron
A	Mobility of holes is more than mobility of electron
Q	To avoid body effect in NMOS device select method to implement in circuit.
A	Provide P well to NMOS device
A	Provide Shield to NMOS device
A	Connect N substrate to Ground
A	Connect P substrate to Ground
Q	identify circuit in which current mirror is placed in load condition of differential amplifier
A	Passive current mirror circuit
A	Active current mirror circuit
A	diffentiial amplifier with current mirror
A	Balance current mirror circuit
Q	Select advantage of cascode current mirror circuit over simple current mirror
A	reduce punch through effect
A	More head room is required
A	channel length modulation effect can be overcome
A	high current boosting

- Q In MOS small signal model body effect of device is represent by\_\_\_\_\_
- A  $g_{mb} \cdot V_{bs}$
- A  $g_{mb} \cdot V_{ds}$
- A  $g_m \cdot V_{gs}$
- A  $g_{mb} \cdot I_{ds}$
- Q Identify material which is used for making gate
- A  $SiO_2$
- A N type Si
- A P type Si
- A Polysilicon+metal
- Q Differential Amplifier has \_\_\_\_\_ value of CMRR
- A High
- A Low
- A 1
- A 0
- Q The tail current in a differential amplifier equal \_\_\_\_\_
- A difference between two source currents
- A sum of two source currents
- A drain current divided by current gain
- A drain voltage divided by drain resistance
- Q Ideally common-mode voltage gain of differential amplifier is \_\_\_\_\_
- A high
- A very low
- A 1
- A zero
- Q When a differential amplifier is operated as single-ended?
- A the output is grounded
- A one input is grounded and signal is applied to the other
- A both inputs are connected together
- A the output is not inverted

Q The average power of flicker noise depends on:  
A Thickness of oxide  
A Voltage on oxide  
A Length of channel  
A Cleanness of the oxide silicon interface  
Q Thermal noise current in the MOSFET is proportional to:  
A Transconductance  
A Resistance  
A Gate voltage  
A Drain Voltages  
Q Which of the following is true?  
A Folded cascode amplifier is a single-pole operational amplifier with large output swing and has higher gain compared to the ordinary op-amp.  
A Folded cascode amplifier is a dual-pole operational amplifier with large output swing and has higher gain compared to the ordinary op-amp.  
A Folded cascode amplifier is a single-pole operational amplifier with small output swing and has higher gain compared to the ordinary op-amp.  
A Folded cascode amplifier is a single-pole operational amplifier with large output swing and has smaller gain compared to the ordinary op-amp.  
Q The maximum and minimum output voltage of the Differential amplifiers is defined as:  
A  $V_{max} = V_{DD}$ ,  $V_{min} = -V_{DD}$   
A  $V_{max} = V_{DD}$ ,  $V_{min} = R_{d,Iss}$   
A  $V_{max} = V_{DD}$ ,  $V_{min} = V_{DD} - R_{d,Iss}$   
A Cannot be determined  
Q What is telescopic Op-Amp?  
A To achieve high gain differential cascode topologies are used  
A To achieve small gain differential cascode topologies are used  
A To achieve high impedance differential cascode topologies are used  
A To achieve small impedance differential cascode topologies are used  
Q The output voltage of open loop opamp is always equal to \_\_\_\_\_.  
A supply voltage value  
A zero  
A 1  
A infinite

- Q The phase response of OP amp is the graph of  
A phase verses frequency  
A phase verses magnitude  
A phase verses phase  
A None of the options
- Q The ideal Op – Amp has the following characteristics.  
A  $R_i = \infty, A = \infty, R_O = 0$   
A  $R_i = 0, A = \infty, R_O = 0$   
A  $R_i = \infty, A = \infty, R_O = \infty$   
A  $R_i = 0, A = \infty, R_O = \infty$
- Q An ideal op-amp is an ideal  
A voltage controlled current source  
A voltage controlled voltage source  
A current controlled current source  
A current controlled voltage source
- Q Gain of Noninverting Amplifier will be  
A  $1+(R_f/R_1)$   
A 1  
A  $R_f/R_1$   
A 0
- Q In ideal voltage-controlled oscillator, the output frequency is \_\_\_\_\_ function of its control voltage  
A Linear  
A Non linear  
A Exponential  
A Gaussian
- Q The oscillating frequency of an N-Stage ring is equal to \_\_\_\_\_ ( $T_d$  denotes large signal delay in each stage)  
A  $2NT_d$   
A  $1/(2NT_d)$   
A  $2N/T_d$   
A  $N/2T_d$

- Q In Charge pump PLL charge pump consists of \_\_\_\_\_ switched sources that pump charge into or out of the loop filter according to two logical inputs
- A One
- A Two
- A Three
- A Four
- Q The \_\_\_\_\_ incorporates a voltage-controlled delay line rather than VCO
- A PLL
- A CPLL
- A DLL
- A PD
- Q What is longform of AMS design flow?
- A Analog Mixed Signal design
- A Analog Module Signal Design
- A Antenna Mixed Signal Design
- A None of the options
- Q In CMOS technologies, modified for analog design \_\_\_\_\_ are fabricated as poly-diffusion, poly-poly or metal-poly structures
- A Resistor
- A Capacitor
- A wire
- A inductor
- Q The wide transistors are usually \_\_\_\_\_ so as to reduce both the source drain junction area and gate resistance
- A folded
- A unfolded
- A twisted
- A maintained
- Q The low resistivity of the substrate creates unwanted paths between various devices in the circuit thereby corrupting sensitive signals called \_\_\_\_\_
- A Substrate coupling
- A source coupling
- A drain coupling
- A gate coupling
- Q Which of the following option is **not true** ?
- A Comparator compares input signal levels
- A Switch capacitor integrator consist of combination of switches & capacitor wich forms resister
- A noninverting amplifier has same polarity as input voltage signal
- A Switch capacitor circuit is more sensitive towards parasitics

- Q Which of the following option is **true** ?
- A Use Unity gain buffer in sample and hold circuit provides fast charging and slow discharging
- A Use Unity gain buffer in sample and hold circuit provides slow charging and fast discharging
- A Use Unity gain buffer in sample and hold circuit provides fast charging and fast discharging
- A Use Unity gain buffer in sample and hold circuit provides slow charging and slow discharging
- Q Which of the following option is **not true** ?
- A noninverting amplifier has same polarity as input voltage signal
- A Switch capacitor circuit is more insensitive towards parasitics
- A Switch capacitor integrator consist of combination of switches & capacitor which forms resister
- A Use Unity gain buffer in sample and hold circuit provides fast charging and fast discharging
- Q What is advantage of adaptive biasing?
- A It reduces power dissipation of circuit
- A It increases power dissipation of circuit
- A power dissipation of circuit remains constant
- A it reduces output current driving capability
- Q Adaptive biasing \_\_\_\_\_ the power dissipation of VLSI circuits
- A reduces
- A increases
- A double
- A unchanged
- Q Adapting biasing of VLSI circuits \_\_\_\_\_ output current drive capability
- A increases
- A decreases
- A half
- A unchanged
- Q Which of the following adds nonlinearity to analog multipliers?
- A Multiple multiplier stage
- A gain stage
- A offset reduction
- A inherent offset voltage
- Q Which of the following makes analog multipliers more linear?
- A Multiple multiplier stage
- A gain stage
- A offset reduction
- A inherent offset voltage

Q Error band in a MOSFET switch should be  
A 50%  
A 100%  
A high  
A low  
Q Time constant of a MOSFET switch is  
A  $R_{on}C$   
A LC  
A RL  
A  $1.2RC$   
Q The equation  $Q_{ch} = WLCox(V_{DD} - V_{in} - V_{th})$  represents  
A channel charge  
A Oxide charge  
A substrate charge  
A None of the options  
Q The equation  $\sqrt{KT/C}$  is \_\_\_\_\_  
A inductance  
A resistance  
A rms value of total noise current  
A rms value of total noise voltage  
Q How many control lines are present in analog to digital converter in addition to reference voltage?  
A Three  
A Two  
A One  
A Four  
Q Find out the integrating type analog to digital converter?  
A Flash type converter  
A Tracking converter  
A Counter type converter  
A Dual slope ADC  
Q Which A/D converter is considered to be simplest, fastest and most expensive?  
A Servo converter  
A Counter type ADC  
A Flash type ADC  
A Cyclic DAC

Q The flash type A/D converters are called as  
A Parallel non-inverting A/D converter  
A Parallel counter A/D converter  
A Parallel inverting A/D converter  
A Parallel comparator A/D converter  
Q The number of comparator required for flash type A/D converter  
A Triples for each added bit  
A Reduce by half for each added bit  
A Double for each added bit  
A Doubles exponentially for each added bit  
Q Calculate the conversion time of a 12-bit counter type ADC with 1MHz clock frequent to convert a full scale input?  
A 4.095  $\mu$ s  
A 4.095ms  
A 4.095s  
A 4.095ns  
Q In a servo tracking A/D converter, the input voltage is greater than the DAC output signal at this condition  
A The counter count up  
A The counter count down  
A The counter back and forth  
A Fast Counting  
Q At what condition error occurs in the servo tracking A/D Converter?  
A Slow change input  
A Rapid change in input  
A No change in input  
A Random input change