Analog_Elex_Quiz1

* Indicates required question

Untitled Section

Name_RollNumber_Branch *

Your answer

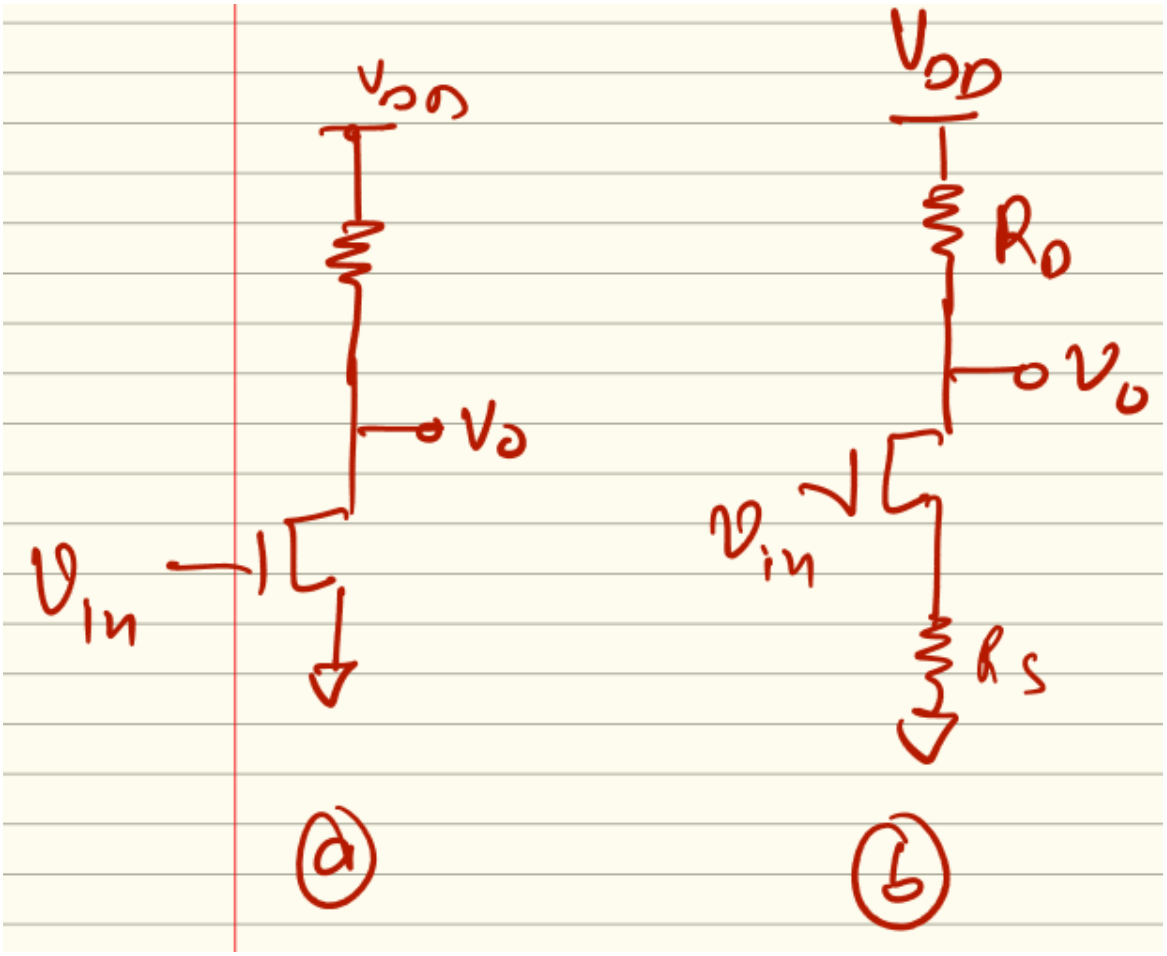
Email_id *

Your answer

To use as an amplifier and as a switch (in ON state), a BJT transistor is kept in

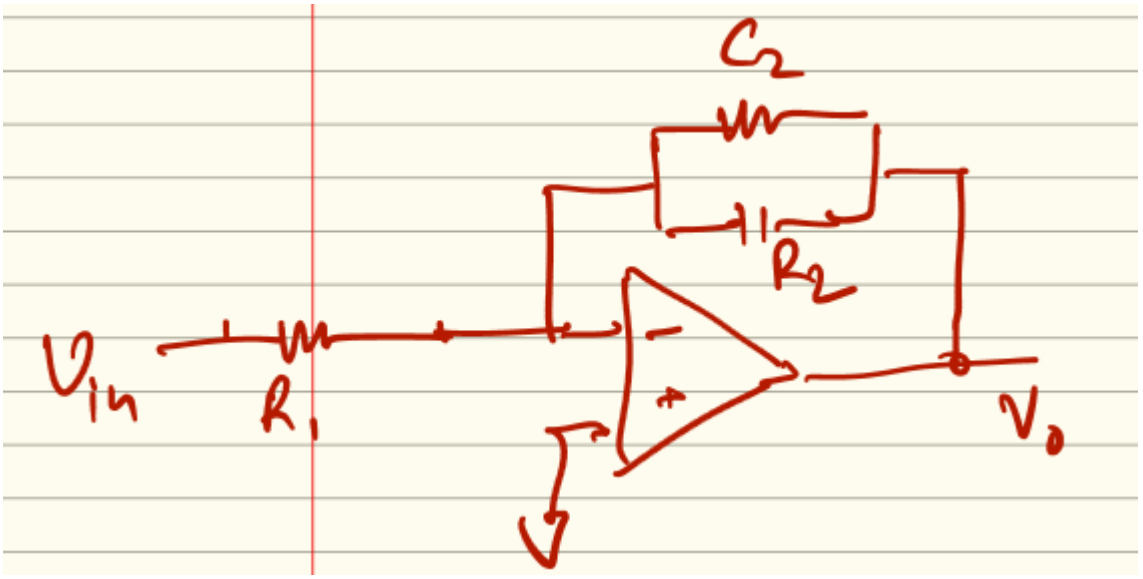
- ( ) Active and Saturation Region, respectively
- ( ) Active region
- ( ) Saturation region
- ( ) Saturation and Active Region, respectively

Linearity of the circuit (a) is ..... the circuit (b)



- better than
- depends on Rs and RL
- same as
- worse than

Freq region of operation of the following integrator will be

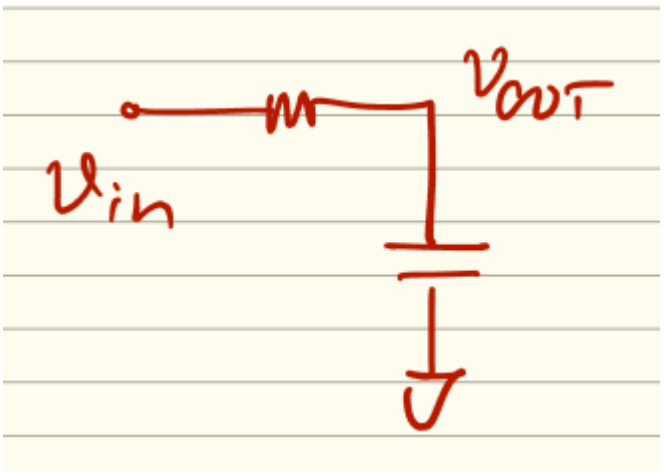


- Between DC and 1/R1C1
- Between 1/R1C2 and BW of the opamp where 1/R1C2 < BW of the opamp
- Between 1/R2C1 BW of the opamp when 1/R2C1 > BW of the opamp
- Between 1/R2C2 and BW of the opamp where 1/R2C2 < BW of the opamp

An amplifier cannot be designed using only

- Non Linear circuit elements
- Linear circuit elements
- combination of active and passive circuit elements
- Active circuit elements

The following circuit cannot act as a good integrator becoz



- Passive circuits do not provide gain
- Current through R is function of Vin and Vout both
- Current through R is not constant
- Current through C is not Constant

Speed of of a MOS device is ..... speed of of a BJT

- equal to
- less than due to more parasitic caps
- negligible as compared to
- greater than due to less parasitic caps

Transconductance of of a MOS is ..... Transconductance of of a BJT (for the same current)

- ◯ equal to
- ◯ negligible as compared to
- ◯ greater than
- ◯ less than

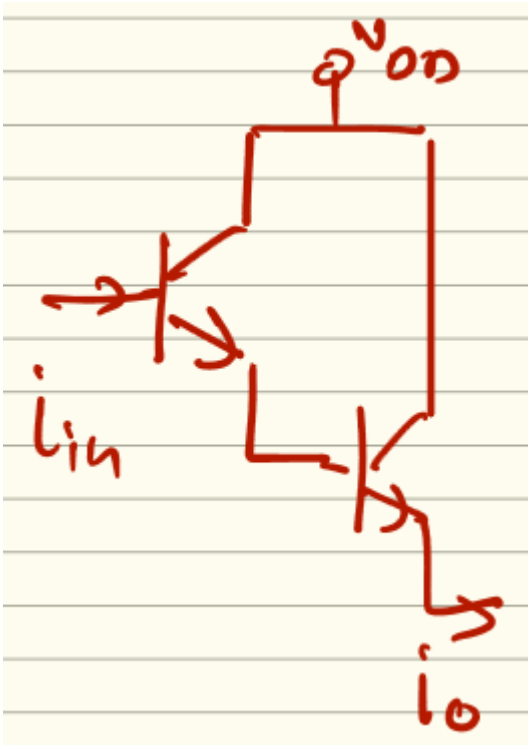
To use as an amplifier and as a switch (in ON state), a MOS transistor is kept in

- ◯ Saturation region
- ◯ Saturation and Linear Region, respectively
- ◯ Linear and Saturation Region, respectively
- ◯ Linear region

Amplification of differential inputs in the deference amplifiers (like opamp) removes

- ◯ common mode noise and interference
- ◯ distrotion in the output
- ◯ offset
- ◯ all types of noise

Current gain of the following circuit is

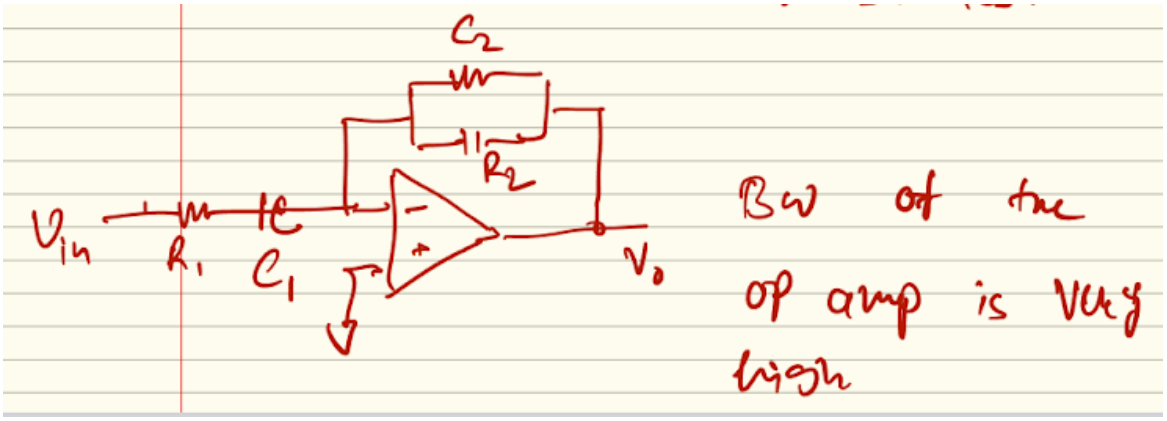


- (Beta+1)^2
- Beta
- (Beta)^2
- (Beta+1)^Beta

Negative feedback does not helps in

- Offset reduction
- Stability and linearity enhancement
- Bandwidth enhancement
- Power reduction

Freq region of operation of the following differentiator will be

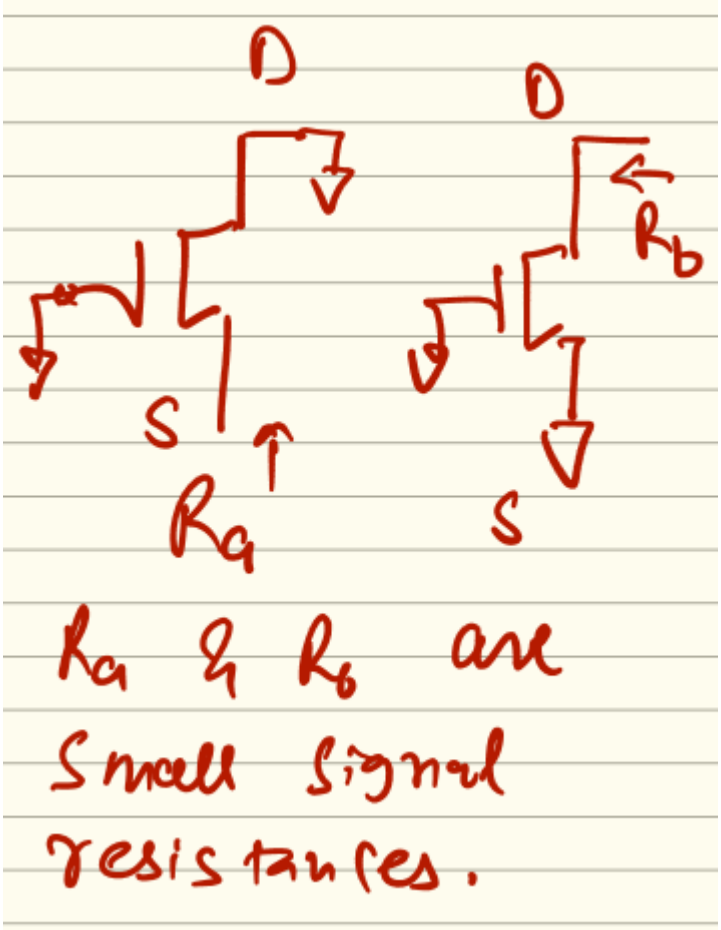


- Between DC and 1/R1C1 when 1/R2C2 > 1/R1C1
- Between 1/R1C1 and BW of the opamp
- Between 1/R2C2 and BW of the opamp
- Between DC and 1/R2C2 when 1/R2C2 < 1/R1C1

The input impedance of a MOS (looking into the Gate) is .....the input impedance of a BJT (looking into the base)

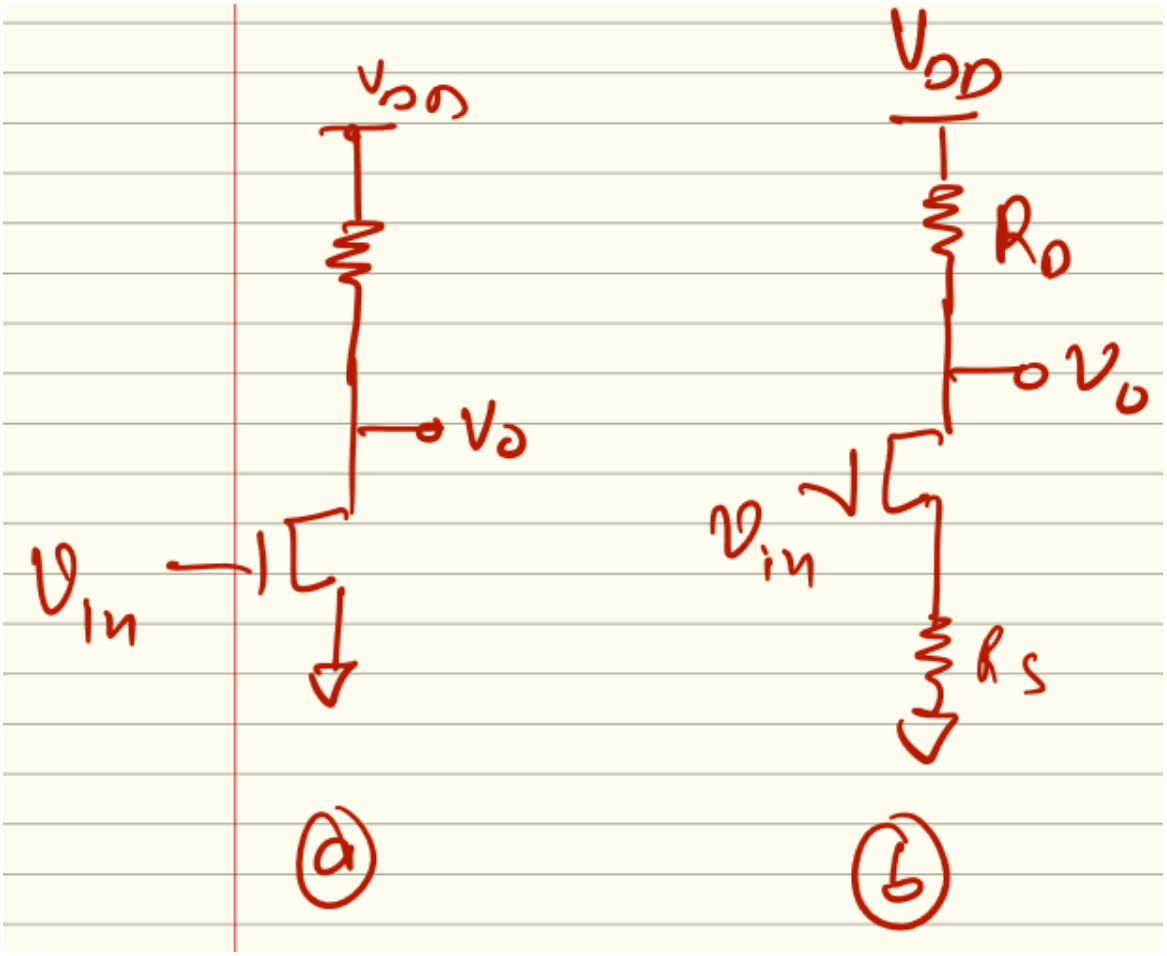
- greater than
- equal to
- negligible as compared to
- less than

For the following circuits



- R_a appox equal to R_b
- R_a > R_b
- R_a < R_b
- R_a = R_b

Small signal voltage gain of the following circuits are

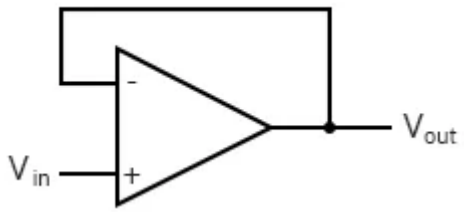


- gm*RD and RD/RL, respectively (channel length modulation is not present and gm is very high)
- infinite and RD/RL, respectively (channel length modulation is not present)
- gm_1*RD and infinite, respectively (channel length modulation is not present)
- gm_1*RD and gm*RL, respectively (channel length modulation is not present)

For a MOS based voltage amplifier to function properly, which of the following condition is not required

- Constant Q points (Larrge signal current and voltages)
- Very high transconductance
- High input impedance and low output impedance
- All transistors must be in saturation region

What is the % of error in the output calculated using virtual shot for the following circuit, if open loop gain of the system is 4



- 0
- 4%
- 20%
- 80%

If a is the open-loop voltage gain and -3dB BW an opamp is 10^4 and 100 kHz, respectively then what will be the new BW if the same system is configured in closed loop to achieve a voltage gain of 10.

- ○ 100 KHz
- ○ 100 Hz
- ○ 100 MHz
- ○ 10 MHz

Amplification of difference of inputs done using the deference amplifiers (like opamp) removes

- ○ offset
- ○ all types of noise
- ○ distrotion in the output
- ○ common mode noise and interference

High Linearity of an amplifier is good for

- ○ better noise performance
- ○ lesser distortion of the output signal
- ○ high speed
- ○ higher gain

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