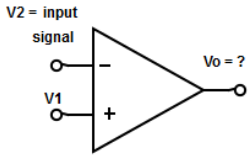
Chettinad College of Engineering & Technology
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

Department of Electrical and Electronics Engineering

EE8451-Linear Integrated Circuits & Applications

Unit II - MCQ Bank

1. Determine the output from the following circuit



A) 180^o In Phase With Input Signal

B) 180^o Out Of Phase With Input Signal

C) Same As That Of Input Signal

D) Output signal cannot be determined

Answer: (B)

2. Which of the following electrical characteristics is not exhibited by an ideal op-amp?

A) Infinite Voltage Gain

B) Infinite Bandwidth

C) Infinite Output Resistance

D) Infinite Slew Rate

Answer: (C)

3. Ideal op-amp has infinite voltage gain because

A) To Control The Output Voltage

B) To Obtain Finite Output Voltage

C) To Receive Zero Noise Output Voltage

D) None Of The Mentioned

Answer: (B)

4. Find the output voltage of an ideal op-amp. If V_1 and V_2 are the two input voltages

A) $V_O = V_1 - V_2$

B) $V_O = A \times (V_1 - V_2)$

C) $V_O = A \times (V_1 + V_2)$

D) $V_O = V_1 \times V_2$

Answer: (B)

5. How will be the output voltage obtained for an ideal op-amp?

A) Amplifies The Difference Between The Two Input Voltages

B) Amplifies Individual Voltages Input Voltages

C) Amplifies Products Of Two Input Voltage

D) None of the mentioned

Answer: (A)

6. Which is not the ideal characteristic of an op-amp?

A) Input Resistance –> 0

B) Output Impedance –> 0

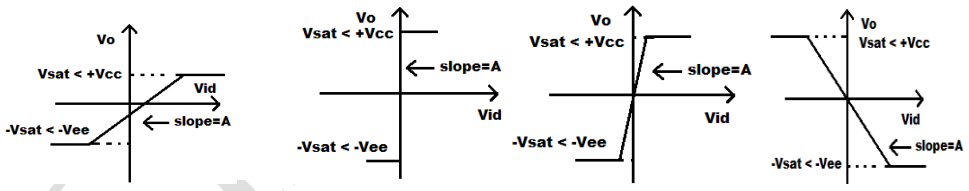
C) Bandwidth –> ∞

D) Open Loop Voltage Gain –> ∞

Answer: (A)

7. Find the ideal voltage transfer curve of a normal op-amp.

A) b) c) d)



Answer: (C)

8. Which factor determine the output voltage of an op-amp?

A) Positive Saturation

B) Negative Saturation

C) Both Positive And Negative Saturation Voltage

D) Supply Voltage

Answer: (C)

9. In which configuration does the op-amp function as a high gain amplifier?

A) Differential Amplifier

B) Inverting Amplifier

C) Non-Inverting Amplifier

D) All Of The Mentioned

Answer: (D)

10. How does the open loop op-amp configuration classified?

A) Based On The Output Obtained

B) Based On The Input Applied

C) Based On The Amplification

D) Based on the feedback network

Answer: (B)

11. What will be the voltage drop across the source resistance of differential amplifier when connected in open loop configuration?

A) Zero

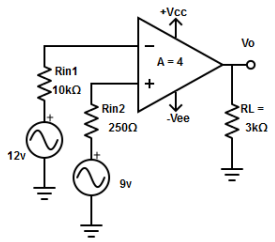
B) Infinity

C) One

D) Greater Than One

Answer: a

12. Calculate the output voltage for the given circuit.



A) $V_O = 7V$

B) $V_O = 5.9V$

C) $V_O = 12V$

D) $V_O = 11.4V$

Answer: (C)

13. What happen if any positive input signal is applied to open-loop configuration?

A) Output Reaches Saturation Level

B) Output Voltage Swing's Peak To Peak

C) Output Will Be A Sine Waveform

D) Output Will Be A Non-Sinusoidal Waveform

Answer: a

14. Which of the following is not a feedback configuration?

A) Current-Series Feedback

B) Voltage-Shunt Feedback

C) Current-Voltage Feedback

D) Current-Shunt Feedback

Answer: (C)

15. On what criteria does the feedback amplifier are classified?

A) Signal Fed Back To Input

B) Signal Applied To Input

C) Signal Fed Back To Output

D) None of the mentioned

Answer: (D)

16. Select the specifications that implies the inverting amplifier?

A) $V_1 = -3V, V_2 = -4V$

B) $V_1 = -2V, V_2 = 3V$

C) $V_1 = 5V, V_2 = 15V$

D) $V_1 = 0v, V_2 = 5v$

Answer: (D)

17. Given an op-amp who's gain is unknown but the output is saturated, which of the following is not possible?

A) No Feedback Is Being Applied

B) Negative Feedback Is Applied While Input Is More Than $-V_{sat}/A_{ol}$

C) Positive Feedback Is Applied

D) Negative feedback is applied while the input is more than V_{Sat}/A_{OL}

Answer: (B)

18. The output of a particular Op-amp increases 8V in 12μs. The slew rate is …….

A) 90 V/μs

B) 0.67 V/μs

C) 1.5 V/μs

D) None of these

Answer : (B)

19. The tail current of a differential amplifier is …….

A) Half of either collector current

B) Equal to either collector current

C) Two times either collector current

D) Equal to the difference in base currents

Answer : (C)

20. In the expression $v_o = -Av_n$, A is called _____

A) Closed Loop Gain

B) Closed Loop Fault

C) Open Loop Fault

D) Open loop gain

Answer: (D)

21. The capacitor doesn't allow sudden changes in _____

A) Voltage

B) Current

C) Resistance

D) Capacitance

Answer: (A)

22. A voltage across a capacitor of 0.5F is defined by

V (t) = [0, t<0

2t, 0<t<2s

$4e^{-(t-2)}$, t>2s, Find i (t).

A) $-2e^{-(T-2)}$ A

B) $-4e^{-(T-2)}$ A

C) $-20e^{-(T-2)}$ A

D) $-12e^{-(T-2)}$ A

Answer: (A)

23. For an ideal non-inverting operational amplifier having finite gain (A), the ratio of output voltage (v_0) to input voltage (v_i) is (given R_2 is the feedback resistance)

A) (1+R2/R1)/(1+((1+R2/R1)/A))

B) (R2/R1)/(((1+R2/R1)/A))

C) (1+R2/R1)/(((1+R2/R1)/A))

D) (R2/R1)/(1+((1+R2/R1)/A))

Answer: (A)

24. The gain for an ideal non-inverting operational amplifier is (given R_2 is the feedback resistance)

A) $R_2/R_1 - 1$

B) R_2/R_1

C) $-R_2/R_1$

D) $R_2/R_1 + 1$

Answer: (D)

25. For designing a non-inverting amplifier with a gain of 2 at the maximum output voltage of 10 V and the current in the voltage divider is to be 10 μA the resistance required are R_1 and R_2 where R_2 is used to provide negative feedback. Then

A) R_1 = 0.5 MΩ AND R_2 = 0.5 MΩ

B) R_1 = 0.5 KΩ AND R_2 = 0.5 KΩ

C) R_1 = 5 MΩ AND R_2 = 5 MΩ

D) R_1 = 5 kΩ and R_2 = 5 kΩ

Answer: (A)