

# LINEAR INTEGRATED CIRCUITS

## Model Question Paper

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1. An ideal operational amplifier has

- A) infinite output impedance
- B) zero input impedance
- C) infinite bandwidth
- D) All of the above

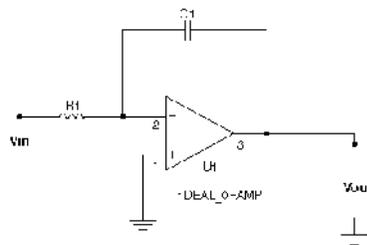
2. Another name for a unity gain amplifier is

- A) difference amplifier
- B) comparator
- C) single ended
- D) voltage follower

3. The open-loop voltage gain ( $A_{ol}$ ) of an op-amp is the

- A) external voltage gain
- B) internal voltage gain
- C) most controlled parameter
- D) same as  $A_{cl}$

4. What is the output waveform?

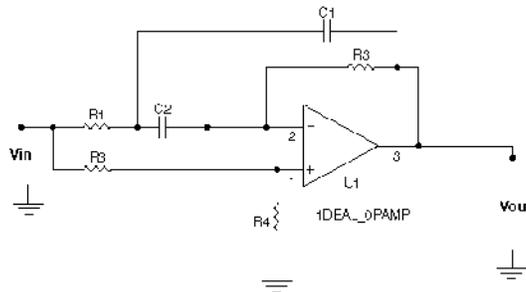


- A) sine wave
- B) square wave
- C) sawtooth wave
- D) triangle wave

5. A series dissipative regulator is an example of a

- A) linear regulator
- B) switching
- C) shunt regulator
- D) dc-to-dc converter

6. What is this circuit?



- A) a low-pass filter
- C) a bandpass filter

- B) a high-pass filter
- D) a band-stop filter

7. A non inverting closed-loop op-amp circuit generally has a gain factor:

- A) less than one
  - C) of zero
- B) greater than one
  - D) equal to one

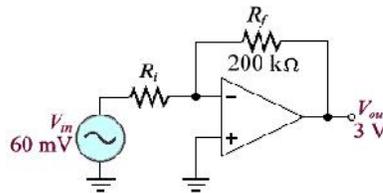
8. In order for an output to swing above and below a zero reference, the op-amp circuit requires:

- A) a resistive feedback network
  - C) a wide bandwidth
- B) zero offset
  - D) a negative and positive supply

9. Op-amps used as high- and low-pass filter circuits employ which configuration?

- A) noninverting
  - C) open-loop
- B) comparator
  - D) inverting

10. Decreasing the gain in the given circuit could be achieved by



- A) reducing the amplitude of the input voltage
- B) increasing the value of the feedback resistor
- C) increasing the value of the input resistor
- D) removing the feedback resistor

11. If ground is applied to the (+) terminal of an inverting op-amp, the (-) terminal will:

- A) not need an input resistor
  - C) have high reverse current
- B) be virtual ground
  - D) not invert the signal

12. An astable multivibrator is also known as a

- A) one-shot multivibrator
  - C) bistable multivibrator
- B) free-running multivibrator
  - D) monostable multivibrator

13. With negative feedback, the returning signal

- A) aids the input signal
  - C) opposes the input signal
- B) is proportional to output current
  - D) is proportional to differential voltage gain

14. What starts a free-running multivibrator?

- A) a trigger
  - C) an external circuit
- B) an input signal
  - D) nothing

15. A portion of the output that provides circuit stabilization is considered to be

- A) negative feedback
  - C) open-loop
- B) distortion
  - D) positive feedback

16. How many leads does the TO-5 metal can package of an operational amplifier have?

- A) 8, 10, or 12
  - C) 8 or 14
- B) 6, 8, or 10
  - D) 8 or 16

17. If a noninverting amplifier has an  $R_{IN}$  of 1000 ohms and an  $R_{FB}$  of 2.5 kilohms, what is the  $R_{IN}$  voltage when 1.42 mV is applied to the correct input?

- A) 3.5 mV
  - C) 1.42 mV
- B) ground
  - D) 0.56 mV

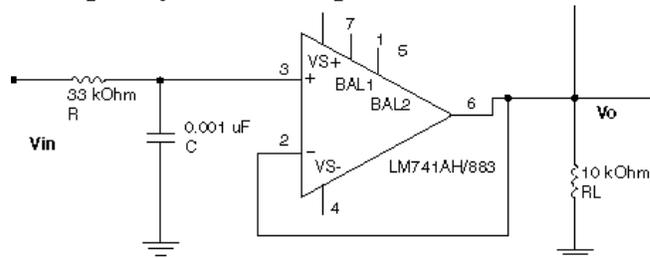
18. Input impedance  $[Z_{in(i)}]$  of an inverting amplifier is approximately equal to

- A)  $R_i$
  - C)
- B)  $R_f + R_i$
  - D)  $R_f - R_i$

19. The closed-loop voltage gain of an inverting amplifier equals

- A) the ratio of the input resistance to the feedback resistance
- B) the open-loop voltage gain
- C) the feedback resistance divided by the input resistance
- D) the input resistance

20. What is the cutoff frequency of this low-pass filter?



A) 4.8 kHz

B) 3.8 kHz

C) 2.8 kHz

D) 1.8 kHz

Answers:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
C	D	B	D	A	D	B	D	D	C	B	B	C	D	A	A	C	A	C	D