الفرقة الثانية
صيدم
٩

Answer all the following questions

1) In a zero-level detector, the output changes state when the input
(a) is positive (b) is negative (c) crosses zero (d) has a zero rate of change.

2) A summing amplifier can have
(a) only one input (b) only two inputs (c) only one output (d) any number of inputs (e) c and d.

3) For a step input, the output of an integrator is
(a) a pulse (b) a triangular waveform (c) a spike (d) a ramp

4) The rate of change of an integrator's output voltage in response to a step input is set by
(a) the RC time constant (b) the amplitude of the step input
(c) the current through the capacitor (d) all of these

5) The output of a differentiator is proportional to
(a) the RC time constant (b) the rate at which the input is changing
(c) the amplitude of the input (d) answers (a) and (b)

6) A certain op-amp has an open-loop gain of 80,000. The maximum saturated output levels of this particular device are when the dc supply voltages are If a differential voltage of 0.15 mV rms is applied between the inputs, the peak-to-peak value of the output is .....

7) If the input to an Op-Amp logarithmic amplifier is x, the output will be equal to .....

8) In astable timer 555, the maximum voltage across the external capacitor used is ..... , while the minimum value is .....

9) The output voltage of a twin T filter (notch filter) at resonance frequency f_r equals to .....

10) At resonance frequency f_r , the output voltage of the lead-lag circuit of Wienbridge oscillator is equal to ..... , while the phase equals to .....

11) The 555 timer can be used as a voltage-controlled oscillator (VCO) by .....

12) A voltage follower
(a) has a gain of 1 (b) is noninverting. (c) has no feedback resistor (d) has all of these.

13) If R_i is increased in the circuit of noninverting op-amp, the voltage gain will
(a) increase (b) decrease (c) not change.

14) If 10 mV are applied to the input to inverting the op-amp and R_f is increased, the output voltage will
(a) increase (b) decrease (c) not change.

15) If A_{ol} equals to 3500 and A_{cm} equals to 0.35, the CMRR is
(a) 1225 (b)10,000 (c) 80 dB (d) answers (b) and (c).

16) The output of a particular op-amp increases 8 V in 12 μA. The slew rate is
(a) 96 V/ μS (b) 1.5 V/μS (c) 0.67 V/μS (d) none of these.

17) The frequency of oscillation f_r of a sinusoidal oscillator is mainly determined by
(a) voltage gain of the op-amp A_v used (b) $A_v\beta$ c) the attenuation of the feedback circuit β
(d) the resonant frequency of the feedback circuit (e) answers (c) and (d).

18) Draw and compare the frequency response of Op-Amp before and after negative feedback.

19) When negative feedback is used, the gain-bandwidth product of an op-amp
(a) increases (b) decreases (c) stays the same (d) fluctuates.

20) For an oscillator to properly start, the gain around the feedback loop must initially be
(a) less than one (b) one (c) greater than one (d) equal to β.

توقيع أستاذ المادة :