1. What is the primary purpose of feedback in electronic circuits?
a) To increase power consumption
b) To decrease signal distortion
c) To decrease circuit stability
d) To increase circuit complexity

Answer: b) To decrease signal distortion
Explanation: Feedback in electronic circuits helps in reducing signal distortion by stabilizing and controlling the gain of the circuit.

2. Which type of feedback amplifier configuration is commonly used for stabilizing gain and reducing distortion?
a) Positive feedback
b) Negative feedback
c) Neutral feedback
d) Reverse feedback

Answer: b) Negative feedback
Explanation: Negative feedback amplifiers reduce distortion and improve stability by feeding a portion of the output signal back into the input with inverted phase.

3. What are the advantages of using negative feedback in amplifiers?
a) Increased distortion
b) Reduced gain stability
c) Increased bandwidth
d) Reduced linearity

Answer: c) Increased bandwidth
Explanation: Negative feedback increases bandwidth, reduces distortion, improves linearity, and stabilizes gain in amplifiers.

4. Which feedback topology does not change the phase of the feedback signal?
a) Voltage-series feedback
b) Voltage-shunt feedback
c) Current-series feedback
d) Current-shunt feedback

Answer: b) Voltage-shunt feedback
Explanation: In voltage-shunt feedback, the feedback signal is connected in parallel with the input signal and does not change its phase.

5. What is the Barkhausen criterion used for in oscillator design?
a) To increase power consumption
b) To decrease circuit stability
c) To ensure oscillation
d) To increase signal distortion

Answer: c) To ensure oscillation
Explanation: The Barkhausen criterion is a condition for oscillation in electronic circuits, ensuring that the loop gain is equal to or greater than unity with a phase shift of 0 or 360 degrees.

6. Which type of oscillator employs a frequency-determining network consisting of resistors and capacitors?

a) RC oscillator
b) LC oscillator
c) Crystal oscillator
d) Phase-shift oscillator

Answer: a) RC oscillator
Explanation: RC oscillators use resistor-capacitor networks to determine the oscillation frequency.

7. What is the primary component used for frequency stabilization in a crystal oscillator?
a) Inductor
b) Capacitor
c) Quartz crystal
d) Resistor

Answer: c) Quartz crystal
Explanation: Crystal oscillators utilize the mechanical resonance of a quartz crystal for highly stable frequency generation.

8. Which oscillator configuration is commonly used in radio frequency (RF) applications due to its high frequency stability?
a) Colpitt’s oscillator
b) Hartley oscillator
c) Clapp oscillator
d) Wien Bridge oscillator

Answer: b) Hartley oscillator

Explanation: The Hartley oscillator is widely used in RF applications due to its high frequency stability and ease of tuning.

9. In which oscillator configuration is the feedback provided through a tapped inductor or transformer?
a) Clapp oscillator
b) Colpitt’s oscillator
c) Hartley oscillator
d) Wien Bridge oscillator

Answer: c) Hartley oscillator
Explanation: The Hartley oscillator uses a tapped inductor or transformer for providing feedback.

10. Which oscillator configuration typically employs a combination of resistors, capacitors, and an operational amplifier?
a) Colpitt’s oscillator
b) Wien Bridge oscillator
c) RC phase-shift oscillator
d) Clapp oscillator

Answer: b) Wien Bridge oscillator
Explanation: The Wien Bridge oscillator utilizes an operational amplifier along with resistors and capacitors for oscillation.

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