

Principles of Electronic Communication Systems
4th edition Frenzel Test Bank

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Chapter 02 Test Bank: Electronic Fundamentals for Communications KEY

1. Gain means attenuation.

FALSE

*Blooms: 3. Apply
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Section: 02.01 Gain, Attenuation, and Decibels
Subtopic: Gain, Attenuation, and Decibels
Topic: Electronic Fundamentals for Communications*

2. Circuits that introduce attenuation have a gain that is less than 1.

TRUE

*Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Medium
Section: 02.01 Gain, Attenuation, and Decibels
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3. The gain or loss of a circuit is usually expressed in volts (V).

FALSE

*Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Subtopic: Gain, Attenuation, and Decibels
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4. When a decibel value is computed by comparing a power value to 1 mW, the result is a value called the dBm.

TRUE

*Blooms: 1. Remember
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5. Both coils and capacitors offer an opposition to alternating current flow known as resistance.

FALSE

*Blooms: 2. Understand
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Difficulty: Easy
Section: 02.02 Tuned Circuits
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6. The basic unit of inductance is the henry.

TRUE

*Blooms: 1. Remember
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7. The tendency of electrons flowing in a conductor to flow near and on the outer surface of a conductor at very high frequencies is called skin effect.

TRUE

*Blooms: 1. Remember
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8. Resonance in a series tuned circuit is the point at which X_L equals X_C .

TRUE

*Blooms: 1. Remember
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9. The bandwidth of a resonant circuit defines its selectivity.

TRUE

*Blooms: 1. Remember
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10. The bandwidth of a circuit is directly proportional to Q.

FALSE

*Blooms: 1. Remember
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11. A frequency-selective circuit designed to pass some frequencies and reject others is a(n)

- A.
tank circuit
- B.**
filter
- C.
harmonic circuit
- D.
frequency doubler

*Blooms: 2. Understand
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Section: 02.03 Filters
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12. A circuit that rejects or stops frequencies over a narrow range but allows frequencies above and below to pass is the

- A. high-pass filter
- B. bandpass filter
- C. band-reject filter
- D. all-pass filter

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13. The signal attenuation in the passband of a filter is called

- A. insertion loss
- B. roll-off loss
- C. notch loss
- D. impedance

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14. Which of the following is also known as a notch filter?

- A. low-pass
- B. high-pass
- C. bandpass
- D.** band-reject

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15. The rate of change of amplitude with frequency in a filter is the

- A. shape factor
- B.** roll-off
- C. insertion loss
- D. attenuation

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16. Which of the following, also known as a Thomson filter, provides the desired frequency response but has a constant time delay in the passband?

- A. Butterworth
- B. Chebyshev
- C. Cauer
- D. Bessel

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17. Which of the following is not an advantage of an active filter?

- A. gain
- B. easy to tune
- C. use of inductors
- D. isolation

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18. Which of the following filter is used to supply signals on exact frequencies with good stability?

- A. RC low-pass
- B. Bessel
- C.** crystal
- D. LC notch

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19. Which of the following filter is very small and inexpensive and widely used in communication transmitters and receivers?

- A. Bessel
- B. Butterworth
- C. LC
- D.** ceramic

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20. Which of the following is a fixed tuned bandpass filter that is designed to provide the exact selectivity required by a given application?

A.
Bessel

B.
surface acoustic wave

C.
switched capacitor filters

D.
ceramic

Blooms: 1. Remember

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21. The primary advantage of **SCFs** is that they provide a way to make tuned or selective circuits in an IC without the use of discrete inductors, capacitors, or resistors.

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22. One characteristic of the commutating filter is that it is sensitive to the **harmonics** of the center frequency for which it is designed.

Blooms: 1. Remember

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23. A non-sine wave approach used to determine the characteristics and performance of any communication circuit or system is **Fourier** analysis.

Blooms: 1. Remember

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Section: 02.04 Fourier Theory

Subtopic: Fourier Theory

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24. Most signals and waveforms discussed and analyzed are expressed in the time domain.

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25. The bandwidth of a rectangular wave is equal to 0.35 divided by rise time.

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26. When two or more stages of amplification are cascaded, the overall gain of the combination is the product of the individual circuit gains.

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27. Attenuation refers to a loss introduced by a circuit or component.

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28. When gain is converted to decibels, the overall gain of an electronic circuit can be computed by adding the individual gains expressed in decibels.

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29. When a decibel value is computed by comparing a power value to 1 mW, the result is a value called the dBm.

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30. Circuits made up of inductors and capacitors that resonate at specific frequencies are called **tuned** circuits.

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31. The reactance of a capacitor is **inversely** proportional to the value of capacitance and operating frequency.

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32. A(n) **inductor** also called a coil or choke is simply a winding of multiple turns of wire.

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33. An important characteristic of an inductor is the ratio of inductive power to resistive power referred to as its **quality** factor.

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34. When the inductive and capacitive reactances are equal, **resonance** occurs.

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35. The **bandwidth** of a tuned circuit is defined as the difference between its upper and lower cutoff frequencies.

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