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
Subtopic: 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
Topic: Electronic Fundamentals for Communications

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
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

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5. Both coils and capacitors offer an opposition to alternating current flow known as resistance.

FALSE

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
Topic: Electronic Fundamentals for Communications

6. The basic unit of inductance is the henry.

TRUE

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
Topic: Electronic Fundamentals for Communications

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
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Hard
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
Topic: Electronic Fundamentals for Communications

8. Resonance in a series tuned circuit is the point at which X_L equals X_C.

TRUE

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Medium
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
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9. The bandwidth of a resonant circuit defines its selectivity.

TRUE

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Hard
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
Topic: Electronic Fundamentals for Communications

10. The bandwidth of a circuit is directly proportional to Q.

FALSE

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Hard
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
Topic: Electronic Fundamentals for Communications

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
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Section: 02.03 Filters
Subtopic: Filters
Topic: Electronic Fundamentals for Communications

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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

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Hard
Section: 02.03 Filters
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Topic: Electronic Fundamentals for Communications

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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Chapter: 02 Electronic Fundamentals for Communications
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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

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Medium
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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

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
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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

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Medium
Section: 02.03 Filters
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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
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Hard
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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.

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
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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.

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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
Topic: Electronic Fundamentals for Communications

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

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Section: 02.04 Fourier Theory
Subtopic: Fourier Theory
Topic: Electronic Fundamentals for Communications

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

Blooms: 2. Understand
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Hard
Section: 02.04 Fourier Theory
Subtopic: Fourier Theory
Topic: Electronic Fundamentals for Communications

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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Section: 02.01 Gain, Attenuation, and Decibels
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27. **Attenuation** refers to a loss introduced by a circuit or component.

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Section: 02.01 Gain, Attenuation, and Decibels
Subtopic: Gain, Attenuation, and Decibels
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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.

Blooms: 2. Understand
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

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

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
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30. Circuits made up of inductors and capacitors that resonate at specific frequencies are called **tuned** circuits.

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
Section: 02.02 Tuned Circuits
Subtopic: Tuned Circuits
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31. The reactance of a capacitor is **inversely** proportional to the value of capacitance and operating frequency.

Blooms: 1. Remember
Chapter: 02 Electronic Fundamentals for Communications
Difficulty: Easy
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32. A(n) **inductor** also called a coil or choke is simply a winding of multiple turns of wire.

Blooms: 1. Remember
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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.

Blooms: 2. Understand
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34. When the inductive and capacitive reactances are equal, **resonance** occurs.

Blooms: 2. Understand
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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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