

Basic Qualification Question Bank for Amateur Radio Operator Certificate Examinations

Transmitters and Receivers



B-003-2-1 (1)

In a frequency modulation transmitter, the input to the speech amplifier is connected to the:

1. microphone
2. modulator
3. power amplifier
4. frequency multiplier

B-003-2-2 (3)

In a frequency modulation transmitter, the microphone is connected to the:

1. modulator
2. power amplifier
3. speech amplifier
4. Oscillator

B-003-2-3 (1)

In a frequency modulation transmitter, the _____ is in between the speech amplifier and the oscillator.

1. modulator
2. power amplifier
3. microphone
4. frequency multiplier

B-003-2-4 (2)

In a frequency modulation transmitter, the _____ is located between the modulator and the frequency multiplier.

1. speech amplifier
2. oscillator
3. power amplifier
4. microphone

B-003-2-5 (1)

In a frequency modulation transmitter, the _____ is located between the oscillator and the power amplifier.

1. frequency multiplier
2. microphone
3. speech amplifier
4. Modulator

B-003-2-6 (2)

In a frequency modulation transmitter, the _____ is located between the frequency multiplier and the antenna.

1. modulator
2. power amplifier
3. speech amplifier
4. oscillator

B-003-2-7 (3)

In a frequency modulation transmitter, the power amplifier output is connected to the:

1. frequency multiplier
2. microphone
3. antenna
4. modulator

B-003-4-1 (3)

In a CW transmitter, the output from the _____ is connected to the driver/buffer.

1. power amplifier
2. telegraph key
3. master oscillator
4. power supply

B-003-4-2 (2)

In a typical CW transmitter, the _____ is the primary source of direct current.

1. driver/buffer
2. power supply
3. power amplifier
4. master oscillator

B-003-4-3 (2)

In a CW transmitter, the _____ is between the master oscillator and the power amplifier.

1. audio amplifier
2. driver/buffer
3. power supply
4. telegraph key

B-003-4-4 (3)

In a CW transmitter, the _____ controls when RF energy is applied to the antenna.

1. master oscillator
2. driver/buffer
3. telegraph key
4. power amplifier

B-003-4-5 (2)

In a CW transmitter, the _____ is in between the driver/buffer stage and the antenna.

1. power supply
2. power amplifier
3. telegraph key
4. master oscillator

B-003-4-6 (1)

In a CW transmitter, the output of the _____ is transferred to the antenna.

1. power amplifier
2. driver/buffer
3. power supply
4. master oscillator

B-003-6-1 (1)

In a single sideband transmitter, the output of the _____ is connected to the balanced modulator.

1. radio frequency oscillator
2. variable frequency oscillator
3. linear amplifier
4. Mixer

B-003-6-2 (2)

In a single sideband transmitter, the output of the _____ is connected to the filter.

1. microphone
2. balanced modulator
3. mixer
4. radio frequency oscillator

B-003-6-3 (3)

In a single sideband transmitter, the _____ is in between the balanced modulator and the mixer.

1. radio frequency oscillator
2. speech amplifier
3. filter
4. Microphone

B-003-6-4 (4) In a single sideband transmitter, the _____ is connected to the speech amplifier.

1. radio frequency oscillator
2. filter
3. mixer
4. Microphone

B-003-6-5 (3)

In a single sideband transmitter, the output of the _____ is connected to the balanced modulator.

1. filter
2. variable frequency oscillator
3. speech amplifier
4. linear amplifier

B-003-6-6 (4) In a single sideband transmitter, the output of the variable frequency oscillator is connected to the _____.

1. antenna
2. balanced modulator
3. linear amplifier
4. Mixer

B-003-6-7 (1)

In a single sideband transmitter, the output of the _____ is connected to the mixer.

1. variable frequency oscillator
2. radio frequency oscillator
3. linear amplifier
4. antenna

B-003-6-8 (2)

In an single sideband transmitter, the _____ is in between the mixer and the antenna.

1. variable frequency oscillator
2. linear amplifier
3. balanced modulator
4. radio frequency oscillator

B-003-6-9 (1)

In a single sideband transmitter, the output of the linear amplifier is connected to the _____.

1. antenna
2. filter
3. variable frequency oscillator
4. speech amplifier

B-003-11-1 (2)

What does chirp mean?

1. A high-pitched tone which is received along with a CW signal
2. A small change in a transmitter's frequency each time it is keyed
3. A slow change in transmitter frequency as the circuit warms up
4. An overload in a receiver's audio circuit whenever CW is received

B-003-11-2 (2)

What can be done to keep a CW transmitter from chirping?

1. Add a key-click filter
2. Keep the power supply voltages very steady
3. Keep the power supply current very steady
4. Add a low pass filter

B-003-11-3 (2)

What circuit has a variable-frequency oscillator connected to a driver and a power amplifier?

1. A crystal-controlled transmitter
2. A VFO-controlled transmitter
3. A single-sideband transmitter
4. A packet-radio transmitter

B-003-11-4 (2)

What type of modulation system changes the amplitude of an RF wave for the purpose of conveying information?

1. Phase modulation
2. Amplitude modulation
3. Amplitude-rectification modulation
4. Frequency modulation

B-003-11-5 (3)

In what emission type does the instantaneous amplitude (envelope) of the RF signal vary in accordance with the modulating audio?

1. Frequency modulation
2. Pulse modulation
3. Amplitude modulation
4. Frequency shift keying

B-003-11-6 (3)

Morse code is usually transmitted by radio as:

1. a series of key-clicks
2. a continuous carrier
3. an interrupted carrier
4. a voice-modulated carrier

B-003-11-7 (3)

A mismatched antenna or feedline may present an incorrect load to the transmitter. The result may be:

1. loss of modulation in the transmitted signal
2. the driver stage will not deliver power to the final
3. excessive heat produced in the final transmitter stage
4. the output tank circuit breaks down

B-003-11-8 (3)

One result of a slight mismatch between the power amplifier of a transmitter and the antenna would be:

1. smaller DC current drain
2. lower modulation percentage
3. reduced antenna radiation
4. radiated key-clicks

B-003-11-9 (3)

An RF oscillator should be electrically and mechanically stable. This is to ensure that the oscillator does not:

1. become over modulated
2. generate key-clicks
3. drift in frequency
4. cause undue distortion

B-003-11-10 (1)

The input power to the final stage of your transmitter is 200 watts and the output is 125 watts. What has happened to the remaining power?

1. It has been dissipated as heat loss
2. It has been used to provide greater efficiency
3. It has been used to provide negative feedback
4. It has been used to provide positive feedback

B-003-11-11 (2)

The difference between DC input power and RF output power of a transmitter RF amplifier:

1. is lost in the feed line
2. appears as heat dissipation
3. is due to oscillating
4. radiates from the antenna

B-003-12-1 (3)

What may happen if an SSB transmitter is operated with the microphone gain set too high?

1. It may cause interference to other stations operating on a higher frequency band
2. It may cause atmospheric interference in the air around the antenna
3. It may cause splatter interference to other stations operating near its frequency
4. It may cause digital interference to computer equipment

B-003-12-2 (4)

What may happen if an SSB transmitter is operated with too much speech processing?

1. It may cause digital interference to computer equipment
2. It may cause atmospheric interference in the air around the antenna
3. It may cause interference to other stations operating on a higher frequency band
4. It may cause splatter interference to other stations operating near its frequency

B-003-12-3 (2)

What is the term for the average power supplied to an antenna transmission line during one RF cycle, at the crest of the modulation envelope?

1. Peak output power
2. Peak envelope power
3. Average radio-frequency power
4. Peak transmitter power

B-003-12-4 (4)

What is the usual bandwidth of a single-sideband amateur signal?

1. 1 kHz
2. 2 kHz
3. Between 3 and 6 kHz
4. Between 2 and 3 kHz

B-003-12-5 (2)

In a typical single-sideband phone transmitter, what circuit processes signals from the balanced modulator and sends signals to the mixer?

1. IF amplifier
2. Filter
3. RF amplifier
4. Carrier oscillator

B-003-12-6 (1)

What is one advantage of carrier suppression in a double-sideband phone transmission?

1. More power can be put into the sidebands
2. Only half the bandwidth is required for the same information content
3. Greater modulation percentage is obtainable with lower distortion
4. Simpler equipment can be used to receive a double-sideband suppressed-carrier signal

B-003-12-7 (4)

What happens to the signal of an overmodulated single-sideband or double-sideband phone transmitter?

1. It becomes louder with no other effects
2. It occupies less bandwidth with poor high-frequency response
3. It has higher fidelity and improved signal-to-noise ratio
4. It becomes distorted and occupies more bandwidth

B-003-12-8 (1)

How should the microphone gain control be adjusted on a single-sideband phone transmitter?

1. For slight movement of the ALC meter on modulation peaks
2. For full deflection of the ALC meter on modulation peaks
3. For 100% frequency deviation on modulation peaks
4. For a dip in plate current

B-003-12-9 (4)

The purpose of a balanced modulator in an SSB transmitter is to:

1. make sure that the carrier and both sidebands are 180 degrees out of phase
2. ensure that the percentage of modulation is kept constant
3. make sure that the carrier and both sidebands are in phase
4. suppress the carrier and pass on the two sidebands

B-003-12-10 (2)

In a SSB transmission, the carrier is:

1. transmitted with one sideband
2. reinserted at the receiver
3. inserted at the transmitter
4. of no use at the receiver

B-003-12-11 (2)

The automatic level control (ALC) in a SSB transmitter :

1. eliminates the transmitter distortion
2. controls the peak audio input so that the final amplifier is not overdriven
3. increases the occupied bandwidth
4. reduces the system noise

B-003-13-1 (4)

What may happen if an FM transmitter is operated with the microphone gain or deviation control set too high?

1. It may cause digital interference to computer equipment
2. It may cause atmospheric interference in the air around the antenna
3. It may cause interference to other stations operating on a higher frequency band
4. It may cause interference to other stations operating near its frequency

B-003-13-2 (1)

What may your FM hand-held or mobile transceiver do if you shout into its microphone?

1. It may cause interference to other stations operating near its frequency
2. It may cause digital interference to computer equipment
3. It may cause atmospheric interference in the air around the antenna
4. It may cause interference to other stations operating on a higher frequency band

B-003-13-3 (4)

What can you do if you are told your FM hand-held or mobile transceiver is overdeviating?

1. Talk louder into the microphone
2. Let the transceiver cool off
3. Change to a higher power level
4. Talk farther away from the microphone

B-003-13-4 (3)

What kind of emission would your FM transmitter produce if its microphone failed to work?

1. A frequency-modulated carrier
2. An amplitude-modulated carrier
3. An unmodulated carrier
4. A phase-modulated carrier

B-003-13-5 (1)

Why is FM voice best for local VHF/UHF radio communications?

1. It has high-fidelity audio which can be understood even when the signal is somewhat weak
2. The carrier is not detectable
3. It is more resistant to distortion caused by reflected signals
4. Its RF carrier stays on frequency better than the AM modes

B-003-13-6 (1)

What is the usual bandwidth of a frequency-modulated amateur signal?

1. Between 10 and 20 kHz
2. Less than 5 kHz
3. Between 5 and 10 kHz
4. Greater than 20 kHz

B-003-13-7 (1)

What is the result of overdeviation in an FM transmitter?

1. Out-of-channel emissions
2. Increased transmitter power
3. Increased transmitter range
4. Poor carrier suppression

B-003-13-8 (4)

What emission is produced by a reactance modulator connected to an RF power amplifier?

1. Multiplex modulation
2. Amplitude modulation
3. Pulse modulation
4. Phase modulation

B-003-13-9 (4)

Why isn't frequency modulated (FM) phone used below 29.5 MHz?

1. The transmitter efficiency for this mode is low
2. Harmonics could not be attenuated to practical levels
3. The frequency stability would not be adequate
4. The bandwidth would exceed limits in the Regulations

B-003-13-10 (1)

You are transmitting FM on the 2 metre band. Several stations advise you that your transmission is distorted. A quick check with a frequency counter tells you that the transmitter is on the proper frequency. Which of the following is the most probable cause of the distortion?

1. The frequency deviation of your transmitter is set too high
2. The power supply output voltage is low
3. The repeater is reversing your sidebands
4. The frequency counter is giving an incorrect reading and you are indeed off frequency

B-003-3-1 (3)

In a frequency modulation receiver, the _____ is connected to the input of the radio frequency amplifier.

1. mixer
2. frequency discriminator
3. antenna
4. Limiter

B-003-3-2 (4)

In a frequency modulation receiver, the _____ is in between the antenna and the mixer.

1. audio frequency amplifier
2. high frequency oscillator
3. intermediate frequency amplifier
4. radio frequency amplifier

B-003-3-3 (4)

In a frequency modulation receiver, the output of the high frequency oscillator is fed to the:

1. radio frequency amplifier
2. limiter
3. antenna
4. Mixer

B-003-3-4 (4)

In a frequency modulation receiver, the output of the _____ is connected to the mixer.

1. frequency discriminator
2. intermediate frequency amplifier
3. speaker and/or headphones
4. high frequency oscillator

B-003-3-5 (1) In a frequency modulation receiver, the _____ is in between the mixer and the intermediate frequency amplifier.

1. filter
2. limiter
3. frequency discriminator
4. radio frequency amplifier

B-003-3-6 (2)

In a frequency modulation receiver, the _____ is located between the filter and the limiter.

1. high frequency oscillator
2. intermediate frequency amplifier
3. mixer
4. radio frequency amplifier

B-003-3-7 (3)

In a frequency modulation receiver, the _____ is in between the intermediate frequency amplifier and the frequency discriminator.

1. filter
2. high frequency oscillator
3. limiter
4. radio frequency amplifier

B-003-3-8 (4)

In a frequency modulation receiver, the _____ is located between the limiter and the audio frequency amplifier.

1. intermediate frequency amplifier
2. speaker and/or headphones
3. high frequency oscillator
4. frequency discriminator

B-003-3-9 (4)

In a frequency modulation receiver, the _____ is located between the speaker and/or headphones and the frequency discriminator.

1. limiter
2. intermediate frequency amplifier
3. radio frequency amplifier
4. audio frequency amplifier

B-003-3-10 (3)

In a frequency modulation receiver, the _____ connects to the audio frequency amplifier.

1. intermediate frequency amplifier
2. frequency discriminator
3. speaker and/or headphones
4. Limiter

B-003-5-1 (4)

In a single sideband and CW receiver, the antenna is connected to the _____ .

1. product detector
2. high frequency oscillator
3. intermediate frequency amplifier
4. radio frequency amplifier

B-003-5-2 (4)

In a single sideband and CW receiver, the output of the _____ is connected to the mixer.

1. filter
2. intermediate frequency amplifier
3. audio frequency amplifier
4. radio frequency amplifier

B-003-5-3 (3)

In a single sideband and CW receiver, the _____ is connected to the radio frequency amplifier and the high frequency oscillator.

1. beat frequency oscillator
2. product detector
3. mixer
4. filter

B-003-5-4 (2)

In a single sideband and CW receiver, the output of the _____ is connected to the mixer.

1. intermediate frequency amplifier
2. high frequency oscillator
3. beat frequency oscillator
4. product detector

B-003-5-5 (1)

In a single sideband and CW receiver, the _____ is in between the mixer and intermediate frequency amplifier.

1. filter
2. radio frequency amplifier
3. beat frequency oscillator
4. product detector

B-003-5-6 (1)

In a single sideband and CW receiver, the _____ is in between the filter and product detector.

1. intermediate frequency amplifier
2. audio frequency amplifier
3. beat frequency oscillator
4. radio frequency amplifier

B-003-5-7 (1)

In a single sideband and CW receiver, the _____ output is connected to the audio frequency amplifier.

1. product detector
2. high frequency oscillator
3. beat frequency oscillator
4. intermediate frequency amplifier

B-003-5-8 (2)

In a single sideband and CW receiver, the _____ is connected to the product detector.

1. mixer
2. beat frequency oscillator
3. radio frequency amplifier
4. audio frequency amplifier

B-003-5-9 (2)

In a single sideband and CW receiver, the _____ is connected to the output of the product detector.

1. intermediate frequency amplifier
2. audio frequency amplifier
3. high frequency oscillator
4. radio frequency amplifier

B-003-5-10 (1)

In a single sideband and CW receiver, the _____ is connected to the output of the audio frequency amplifier.

1. speaker and/or headphones
2. mixer
3. radio frequency amplifier
4. beat frequency oscillator

B-003-10-1 (3)

Which list of emission types is in order from the narrowest bandwidth to the widest bandwidth?

1. CW, SSB voice, RTTY, FM voice
2. CW, FM voice, RTTY, SSB voice
3. CW, RTTY, SSB voice, FM voice
4. RTTY, CW, SSB voice, FM voice

B-003-10-2 (1)

The figure in a receiver's specifications which indicates its sensitivity is the:

1. signal plus noise to noise ratio
2. audio output in watts
3. bandwidth of the IF in kilohertz
4. number of RF amplifiers

B-003-10-3 (3)

If two receivers of different sensitivity are compared, the less sensitive receiver will produce:

1. a steady oscillator drift
2. more than one signal
3. less signal or more noise
4. more signal or less noise

B-003-10-4 (4)

Which of the following modes of transmission is usually detected with a product detector?

1. Double sideband full carrier
2. Frequency modulation
3. Pulse modulation
4. Single sideband suppressed carrier

B-003-10-5 (3)

A receiver designed for SSB reception must have a BFO (beat frequency oscillator) because:

1. it beats with the received carrier to produce the other sideband
2. it reduces the passband of the IF stages
3. the suppressed carrier must be replaced for detection
4. it phases out the unwanted sideband signal

B-003-10-6 (3)

A receiver receives an incoming signal of 3.54 MHz, and the local oscillator produces a signal of 3.995 MHz. To which frequency should the IF be tuned?

1. 7.435 MHz
2. 3.995 MHz
3. 455 kHz
4. 3.54 MHz

B-003-10-7 (1) What kind of filter would you use to attenuate an interfering carrier signal while receiving an SSB transmission?

1. A notch filter
2. A band pass filter
3. An all pass filter
4. A pi-network filter

B-003-10-8 (4)

The three main parameters against which the quality of a receiver is measured are:

1. selectivity, stability and frequency range
2. sensitivity, stability and cross-modulation
3. sensitivity, selectivity and image rejection
4. sensitivity, selectivity and stability

B-003-10-9 (2)

A communications receiver has four filters installed in it, one at 250 Hz, one at 500 Hz, one at 2.4 kHz, and one at 6 kHz. If you were listening to single sideband, which filter would you utilize?

1. 250 Hz
2. 2.4 kHz
3. 6 kHz
4. 500 Hz

B-003-10-10 (4)

A communications receiver has four filters installed in it, one at 250 Hz, one at 500 Hz, one at 2.4 kHz and one at 6 kHz. You are copying a CW transmission and there is a great deal of interference. Which one of the filters would you choose?

1. 500 Hz
2. 2.4 kHz
3. 6 kHz
4. 250 Hz

B-003-10-11 (3)

Selectivity can be placed in the audio stages of a receiver by the utilization of RC active or passive audio filters. If you were to copy CW, which of the following bandpasses would you choose?

1. 2100 - 2300 Hz
2. 300 - 2700 Hz
3. 750 - 850 Hz
4. 100 - 1100 Hz

B-003-13-11 (4)

FM receivers perform in an unusual manner when two or more stations are present. The loudest signal, even though it is only two or three times as loud as the other signals, will be the only transmission demodulated. This is called:

1. attach effect
2. interference effect
3. surrender effect
4. capture effect