GENERAL REVIEW

ELEMENT # 3

***¿What is the approximate length for a 1/2-wavelength dipole antenna for 14.250 MHz? [G9B10]

- 24 feet
- 8feet
- 16 feet
- 33 feet

***¿Which of the following is a characteristic of using a gamma match with a Yagi antenna? [G9C12]

- It does not require inductors or capacitors.
- All the alternatives are correct.
- It is useful for adapting multiband antennas.
- It does not require the driven element to be isolated from the boom

***¿What precautions should be taken when installing a transmitting antenna indoors? [G0A11]

- Locate the antenna close to its operating position to minimize feeder line radiation.
- Ensure that MPE limits are not exceeded in occupied areas.
- Ensure that the antenna is properly shielded.
- Locate the antenna along the edge of a wall to reduce parasitic radiation.

***¿How many watts of electrical power does a 12V DC light bulb consume that draws 0.2 amps? [G5B04]

- 24 watts
- 2.4 watts
- 6 watts
- 60 watts

***¿ Which of the following options can cause reception interference to a vehicle-mounted HF transceiver? [G4E07]

- The control computers
- All alternatives are correct
- The fuel supply system
- The battery charging system

***¿ What standing wave ratio results from connecting a 50 ohm power line to a 10 ohm non-resistive load? [G9A10]

- 1:2
- 5:1
- 1:5
- 2:1

***¿Which of the following transmissions is permitted for all amateur radio stations? [G1B04]

- Encrypted messages, unless intended to facilitate a criminal act
- Automatic retransmission of other amateur signals by any amateur station
- Unidentified transmissions of less than 10 seconds in duration, for testing purposes only
- Occasional retransmission of weather information and propagation forecasts from U.S. government stations

***¿How often can RACES training drills and tests be routinely conducted without special authorization? [G2B11]

- No more than 1 hour per week
- No more than 2 hours per week
- No more than 1 hour per month
- No more than 2 hours per month

***¿How far from the top edge of a band's phone segment should the displayed carrier frequency be when using 3 kHz wide USB? [G4D11]

- At least 3 kHz below the band edge
- At least 1 kHz below the segment edge
- At least 3 kHz above the band edge
- At least 1 kHz above the segment edge

***¿Why Automatic Level Control (ALC) is used with a (1 point) RF power amplifier? [G4A05]

- To balance the transmitter's audio frequency response
- To increase overall efficiency
- To reduce harmonic radiation
- To prevent excessive impulse

***¿What is the maximum transmission power that an amateur radio station can use on the 12 meter band? [G1C02]

- 1500 watts PEP output
- Effective radiated power equivalent to 100 watts of a half-wave dipole
- 50 watts PEP output
- 200 watts PEP output

***¿What effect does a sudden ionospheric disturbance have on daytime ionospheric propagation? [G3A02]

- Improves propagation on all HF frequencies
- None, because it only affects areas on the night side of the Earth
- Disrupts signals at low frequencies more than at high frequencies
- Disrupts satellite communications more than direct communications

***¿How is a contact joining performed between two stations using the PACTOR protocol? [G2E09]

- It is not possible to join an existing contact; PACTOR connections are limited to two stations.
- Send a NAK code.
- Send transmit packets containing your callsign while in MONITOR mode.
- Transmit a constant carrier until the PACTOR protocol times out and disconnects

***¿Which ionospheric region absorbs the most signals below 10 MHz during the day? [G3C11]

- The F2 region
- The D region
- The F1 region
- The E region

***¿When General class licensees are not allowed to use the full voice portion of a band, what portion of the voice segment is available to them? [G1A11]

- The upper frequency part
- The lower frequency part
- The upper frequency part at frequencies below 7.3 MHz, and the lower part at frequencies above 14.150 MHz
- The lower frequency part at frequencies below 7.3 MHz, and the upper part at frequencies above 14.150 MHz

***¿How does an inductor react to alternating current? [G5A05]

- As the frequency of the applied AC increases, the reactance increases
- As the amplitude of the applied AC increases, the reactance increases
- As the amplitude of the applied AC increases, the reactance decreases
- As the frequency of the applied AC increases, the reactance decreases

***¿What are the operating points of a bipolar transistor used as a switch? [G6A07]

- The active region (between cutoff and saturation)
- Peak and valley current points
- Enhancement and reduction modes
- Saturation and cutoff

***¿Which of the following describes an N-type connector?

- A small bayonet connector used for data circuits
- A low-noise VHF connector
- A moisture-resistant RF connector useful for 10 GHz
- A nickel-plated version of the PL-259

***¿In free space, ¿how does the gain of two horizontally polarized, three-element Yagi antennas separated vertically by 1/2 wavelength compare with the gain of a single three-element Yagi antenna? [G9C09]

- Approximately 1.5 dB higher
- Approximately 3 dB higher
- Approximately 6 dB higher
- Approximately 9 dB higher

***¿Which intermodulation products most closely approximate the original signal frequencies? [G8B05]

- Odd order
- Second harmonics
- Intercept point
- Even order

***¿Which of the following describes the operation of full break-in (QSK) in telegraphy? [G2C01]

- Automatic switches, rather than manual switches, are used to send Morse code.
- Transmitting stations can receive between elements and code characters.
- An operator must activate a manual send/receive switch before and after each transmission.
- Incoming stations send the "BK" code of Morse code.

***¿Which of the following describes a linear amplifier? [G7B10]

- A high-efficiency Class C amplifier.
- An amplifier in which the output preserves the input waveform.
- Any RF power amplifier used in conjunction with an amateur transceiver.
- An amplifier used as a frequency multiplier.

***¿How can you avoid the effects of ground loops somewhere in your station? [G4C09]

- Connect all ground conductors in series
- Avoid using lock washers and star washers when making ground connections
- Bond equipment enclosures together
- Connect the AC neutral conductor to the ground wire

***¿What regulations apply when operating a station in South America by remote control over the internet from the US? [G1D12]

- Remote station country regulations only
- Remote station country regulations and FCC third-party regulations
- Both remote station country and FCC regulations
- FCC regulations only

***What is QRP operation? [G2D10]

- Control of remotely piloted models
- Low-power transmission operation
- Quick Response Protocol transmission
- Traffic Relay Procedure network operation

***¿What emission does a reactance modulator connected to a transmitter's RF amplifier stage produce? [G8A04]

- Pulse modulation
- Amplitude modulation
- Multiplex modulation
- Phase modulation

***¿What signals are used to perform a two-tone test? [G4B07]

- Two square wave audio signals of equal amplitude
- Two harmonically unrelated audio signals
- Two audio signals of the same frequency shifted 90 degrees
- Two swept-frequency tones

***¿ What is the capacitance of three 100 microfarad (uf) capacitors connected in series? [G5C09]

- 33.3 microfarads
- 300 microfarads
- 3.0 microfarads
- 0.33 microfarads

***¿What does a +3 signal report mean on FT8? [G8C15]

- The signal is 3 dB higher than S9
- The signal is 3 times the noise level of an equivalent SSB signal
- The signal-to-noise ratio is equivalent to +3 dB in a 2.5 kHz bandwidth
- The signal is S3 (weak signals)

***¿What is the phase difference between the RF signals, I and Q, used by software-defined radio (SDR) equipment for modulation and demodulation? [G7C09]

- 45 degrees
- 180 degrees
- 90 degrees
- Zero

***Generally, ¿who should respond to a station in the 48 contiguous states that calls "CQ DX"? [G2A1]

- Contest stations only
- Anyone can answer
- Stations in Germany only
- Any station outside the 48 US states

***¿Which of the following conditions require a licensed amateur radio operator to take specific measures to prevent harmful interference to other users or facilities? [G1E04]

- When a station transmits spread spectrum emissions
- All of the alternatives are correct
- When using a band where the amateur radio service is secondary
- When operating within one mile of an FCC monitoring station

***¿What should be done before climbing a tower that supports electrically powered devices? [G0B08]

- All alternatives are correct
- Disconnect the ground wire from the base of the tower
- Notify the power company that someone will be working on the tower
- Ensure that all circuits supplying power to the tower are locked out and tagged out
-

***¿What does LUF mean? [G3B07]

- The lowest usable frequency during the last 60 minutes
- The lowest usable frequency for communications between two points
- The lowest usable frequency for communications to any point outside a 100-mile radius
- The lowest usable frequency during a 24-hour period

***¿Which symbol in Figure G7-1 represents a shunt inductor? [G7A13]

Å Symbol 7

Å Symbol 1

Å Symbol 11

Å Symbol 6

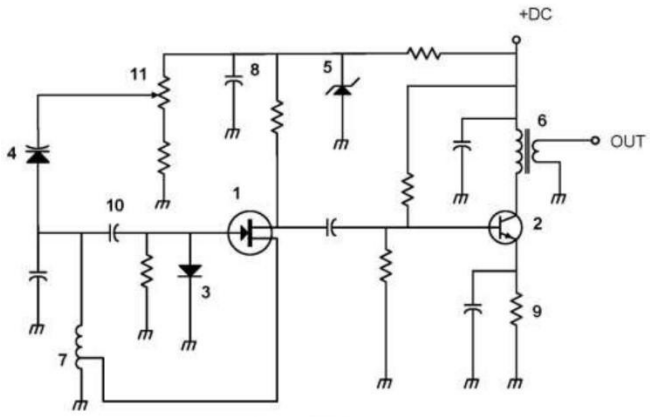

Figure G7-1

***¿What type of propagation allows signals to be heard in the transmitting station's hop zone? [G3C09]

- Chordal hop
- Faraday rotation
- Scatter
- Short-path

***¿What type of device is an integrated circuit operational amplifier? [G6B06]

- MMIC
- Analog
- Programmable logic
- Digital

***¿ What is the effect of modulation duty cycle on RF exposure? [G0A07]

- A lower duty cycle allows higher power levels to be transmitted
- Low duty cycle transmitters are exempt from RF exposure assessment requirements
- High duty cycle transmitters are exempt from RF exposure requirements.
- A higher duty cycle allows higher power levels to be transmitted

***àWhich of the following is a common use of the dual VFO function on a transceiver? [G4A12]

ÅEnable "full duplex" operation, that is, transmit and receive at the same time
ÅAllow transmission on two frequencies simultaneously
ÅTo transmit on one frequency and listen on another
ÅTo improve frequency accuracy by enabling frequency output operation
variable (VFO)

***¿Who can receive partial credit for the elements represented by an expired amateur radio license? [G1D01]

- Anyone who previously held an amateur license issued by another country, but only if that country has a current reciprocal licensing agreement with the FCC
- Only individuals who once held an FCC-issued Novice, Technician, or Technician-plus license
- Anyone who holds an FCC-issued amateur radio license that has been expired for at least 5 years and at most 15 years
- Anyone who can demonstrate that they once held an FCC-issued General, Advanced, or Amateur Extra class license that was not revoked by the FCC

***¿Which of the following is an example of the NATO Phonetic Alphabet? [G2D07]

- Adam, Boy, Charles, David
- Alpha, Bravo, Charlie, Delta
- America, Boston, Canada, Denmark
- Able, Baker, Charlie, Dog

***àHow can you avoid harmful interference on an apparently free frequency before calling CQ on CW or by voice? [G2B06]

- Send "QSY" on CW or, if using voice, announce "the frequency is in use," then give your call sign and wait for a reply
- Listen for 2 minutes before calling CQ
- Send "QRL?" on CW, followed by your call sign; or, if using voice, ask if the frequency is in use, followed by your call sign
- Send the letter "V" in Morse Code several times and listen for a reply, or say "test" several times and listen for a reply

***¿What term indicates the attenuation of a filter within its passband? [G7C07]

- Q

ÅEnd Rejection
ÅInsertion Loss
ÅReturn Loss

***If the SWR on an antenna feedline is 5:1, and a matching network at the transmitter end of the feedline is matched to a 1:1 SWR at the transmitter, ¿what is the resulting SWR on the feedline? G9A08

- 5:1
- Between 1:1 and 5:1 depending on the reflected power at the transmitter
- 1:1
- Between 1:1 and 5:1 depending on the characteristic impedance of the line

***¿What is impedance? [G5A08]

- The relationship between current and voltage
- The product of current and reactance
- The product of current and voltage
- The relationship between voltage and current

***¿What does "front-to-back ratio" mean in reference to a Yagi antenna? [G9C07]

- The power radiated in the main lobe compared to the power radiated in the opposite direction
- The ratio of front-to-back gain to dipole gain
- The number of directors versus the number of reflectors
- The relative position of the driven element with respect to the reflectors and directors

***¿In what configuration are the individual cells of a solar panel connected to each other? [G4E08]

- Parallel-Series
- Full-wave bridge
- Bypass

*** ¿Which of the following requirements is necessary when using FT8? [G2E07]

- Receiver attenuator set to -12 dB
- A vertically polarized antenna
- A special modem
- A computer with an accuracy of approximately 1 second

***¿Why should all metal chassis of station equipment be grounded? [G4C12]

- Prevents a fuse from blowing in the event of an internal short circuit
- Ensures that dangerous voltages cannot appear on the chassis
- Prevents signal overload
- Ensures the neutral wire is grounded

*** ¿What portion of the 10-meter band is available for repeater use? [G1A10]

Å The portion between 28.1 MHz and 28.2 MHz

- The entire band
- The portion above 29.5 MHz
- The portion between 28.3 MHz and 28.5 MHz

***¿Which of the following narrowband digital modes can receive signals with a very low signal-to-noise ratio? [G8C07]

- MFSK32
- FT8
- AMTOR
- MSK144

***¿Which of the following describes the construction of a MOSFET? [G6A09]

- The gate is separated from the channel by a thin insulating layer
- The source is separated from the drain by a thin insulating layer
- The source is formed by depositing metal onto silicon. ◯ The gate is formed by a reverse-biased junction

*** ¿What does the Q signal "QRL" mean? G2C04

- "Are you operating on break-in?" or "Can you operate a full break-in?"
- "Are you listening to only a specific station?"
- "Will you hold the frequency clear?"
- "Are you busy?" or "Is this frequency in use?"

***¿Why should an amateur operator normally avoid transmitting on 14.100, 18.110, 21.150, 24.930, and 28.200 MHz? [G1E10]

- The propagation beacon station system operates on these frequencies
- The automatic digital station system operates on these frequencies
- These frequencies are reserved for emergency operations
- These frequencies are reserved for FCC bulletins

***¿Where should the station's lightning protection ground system be located? [G0B04]

- Next to the nearest utility pole
- As close as possible to the station equipment
- Parallel to the water supply line
- Outside the building

*** ¿What is the approximate length for a 1/2 wave dipole antenna cut for 3.550 MHz? What is the approximate length for a 1/2 wave dipole antenna cut for 3.550 MHz? [G9B11]

- 84 feet
- 263 feet
- 132 feet
- 42 feet

***¿Which of the following can be measured with an antenna analyzer? [G4B13]

- Impedance of a coaxial cable
- Output power of a transmitter
- Front-to-back ratio of an antenna
- Gain of a directional antena

***¿Which of the following statements is true about VOX voice operation versus PTT operation? [G2A10]

- The received signal sounds more natural
- It takes up less bandwidth
- It provides more output power
- It allows for hands-free operation

***¿What is a voice processor used for in a transceiver? [G4D01]

- Prevents distortion of voice signals
- Boosts the transmitter's bass to make SSB signals sound more natural
- Increases the apparent volume of transmitted voice signals
- Decreases high-frequency voice output to prevent out-of-band operation

*** ¿Who or what determines "good engineering and good amateur radio practices" as applied to the operation of an amateur radio station in all aspects not covered by the Part 97 rules? [G1B11]

- FCC
- Operator Control
- IEEE
- ITU

*** ¿ Which symbol in Figure G7-1 represents a solid-core transformer? [G7A12]

Å Symbol 1
Å Symbol 7
Å Symbol 6
Å Symbol 4

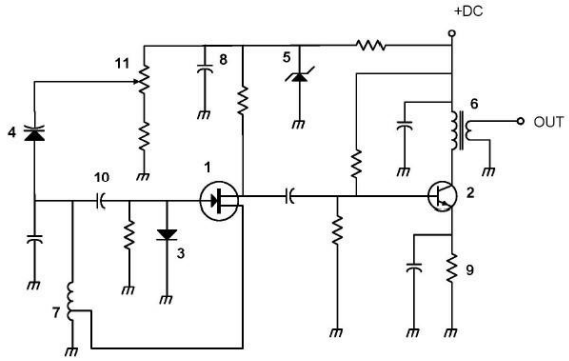

Figure G7-1

*** ¿Which of the following situations is typical for lower HF frequencies during the summer? [G3B12]

- Global propagation during the day
- Strong signal distortion due to photon absorption
- High levels of atmospheric noise or static
- Poor propagation at any time of day

***¿What is the maximum transmit power that an amateur radio station can use at 10.140 MHz? [G1C01]

- 2000 watts PEP output
- 1500 watts PEP output
- 1000 watts PEP output
- 200 watts PEP output

***¿What is the modulation envelope of an AM signal? [G8A11]

- The waveform created by connecting the peak values of the modulated signal
- The bandwidth of the modulated signal
- The carrier frequency that contains the signal
- Spurious signals that envelop nearby frequencies

***¿What is the capacitance of a 20 microfarad capacitor connected in series with a 50 microfarad capacitor? [G5C12]

- 1,000 microfarads
- 14.3 microfarads
- 0.07 microfarads
- 70 microfarads

*** ¿How long does it take for a coronal mass eruption to affect radio wave propagation on Earth? [G3A11]

- From 15 hours to several days
- 4 to 8 minutes
- 14 days
- 28 days

***¿What value of an AC signal produces the same power dissipation in a resistor as a DC voltage of the same value? [G5B07]

- The reciprocal of the RMS value
- The peak value
- The peak-to-peak value
- The RMS value

***¿What is the frequency deviation for a 12.21 MHz reactance-modulated oscillator in a 146.52 MHz FM transmitter with a deviation of 5 kHz? [G8B07]

- 60 kHz
- 101.75 Hz
- 416.7 Hz
- 5 kHz

***¿Which of the following are the basic components of a sine wave oscillator? [G7B07]

- An amplifier and a divider
- A filter and an amplifier operating in a feedback loop
- A frequency multiplier and a mixer
- A circulator and a filter operating in a feedback loop

***¿What is the advantage of vertically stacking horizontally polarized Yagi antennas? [G9D05]

- Allows quick selection of vertical or horizontal polarization
- Reduces the out-of-band main lobe in elevation
- Allows simultaneous vertical and horizontal polarization
- Narrows the main lobe in azimuth

***¿What does "time averaging" mean when assessing RF radiation exposure? [G0A04]

- Total exposure time
- The average amount of energy developed by the transmitter over a specific 24-hour period
- The average time it takes for RF radiation to have any long-term effects on the body
- Total RF exposure averaged over a given period

***¿What is a possible cause of high voltages that cause RF burns? [G4C05]

- Insulated wire was used for the ground wire
- The ground wire has high impedance at that frequency
- The ground rod is resonant
- Flat braid was used instead of round wire for the ground wire

***¿How does a signal that indicates 20 dB above S9 compare to one that indicates S9 on a receiver, assuming a properly calibrated S meter is available? [G4D05]

- It's 10 times less powerful
- It's 20 times more powerful
- It’s 1000 times more powerful
- It's 20 times less powerful

***¿Which of the following frequencies is within the General Class portion of the 15-meter band? [G1A09]

- 18155 kHz
- 14250 kHz
- 21300 kHz
- 24900 kHz

*** ¿Which term specifies a filter's maximum ability to reject signals outside its passband? [G7C13]

- Insertion loss
- End rejection
- Relay
- Notch Depth

***¿What is the name of the process that changes the instantaneous frequency of an RF wave to transmit information? [G8A03]

- Phase modulation
- Frequency modulation
- Phase transformation
- Phase convolution

***¿ What is the approximate maximum distance along the Earth's surface that is typically covered in one hop using the F2 region? [G3B09]

- 12,000 miles
- 1,200 miles
- 180 miles
- 2,500 miles

***¿ How do you point a directional antenna when making a "long-haul" contact with another station? [G2D06]

- 180 degrees from the station's shortest route
- Northward
- Toward the rising sun
- Along the gray line

***¿ What is the voluntary band plan restriction for U.S. stations broadcasting within the 48 contiguous states in the 50.1 to 50.125 MHz band segment? [G2B08]

- Only contacts with other stations within the 48 contiguous states
- Only contacts on SSTV
- Only contacts with stations not located within the 48 contiguous states
- Only digital contacts

***¿ What happens when an inductor is operated above its self-resonant frequency? [G6A11]

- Its reactance increases
- Catastrophic failure is likely
- Harmonics are generated
- It becomes capacitive

***¿What is the nominal characteristic impedance of the "window line" transmission line? [G9A03]

- 100 ohms
- 450 ohms
- 50 ohms
- 75 ohms

***¿What is the transmitter power limit in the 28 MHz band for a general-class control operator? [G1C05]

- 100 watts PEP output
- 2000 watts PEP output
- 1000 watts PEP output
- 1500 watts PEP output

***¿What transformer turns ratio matches the impedance of an antenna's 600 ohm feed point to a 50 ohm coaxial cable??

- 24 a 1
- 144 a 1
- 3.5 a 1
- 12 a 1

***¿What effect can strong signals from nearby transmitters have on an antenna analyzer? [G4B12]

- Desensitization can cause intermodulation problems that interfere with impedance readings.
- All of the alternatives are correct.
- Received power interferes with SWR readings.
- Generation of harmonics interferes with frequency readings

***¿ What is meant by “critical frequency” at a given angle of incidence? [G3C02]

- The lowest frequency that refracts toward Earth
- The highest frequency that refracts toward Earth
- The frequency at which the signal-to-noise ratio is 6 dB
- The frequency at which the signal-to-noise ratio approaches unity

*** ¿On which bands can automatically controlled stations transmitting RTTY or data broadcasts communicate with other automatically controlled digital stations? [G1E11]

- Anywhere on the 6-meter or shorter wavelength bands, and on limited segments of some HF bands
- Anywhere on non-voice segments of the 10-meter or shorter wavelength bands
- Only on non-voice segments of the Extra Class bands
- On any band segment where digital operation is permitted

***¿Which of the following devices can be used for impedance matching in radio frequencies? [G5A10]

Å A Pi network
Å A transmission line
Å All of the options are correct
Å A transformer

***¿ Which of the following describes a log-periodic antenna? [G9D07]

- The impedance varies periodically as a function of frequency
- The gain varies logarithmically as a function of frequency
- The length and spacing of the elements vary logarithmically along the boom
- The SWR varies periodically as a function of the boom

***¿What is the best speed to use when responding to a CQ in Morse code? [G2C05]

- The fastest speed you feel comfortable copying, but no slower than the CQ
- The fastest speed you feel comfortable copying, but not faster than the CQ
- At the standard calling speed of 10 words per minute
- At the standard calling speed of 5 words per minute

***¿ Which symbol in Figure G7-1 represents an NPN junction transistor? [G7A11]

Å Symbol 7

Å Symbol 2

Å Symbol

Å Symbol 11

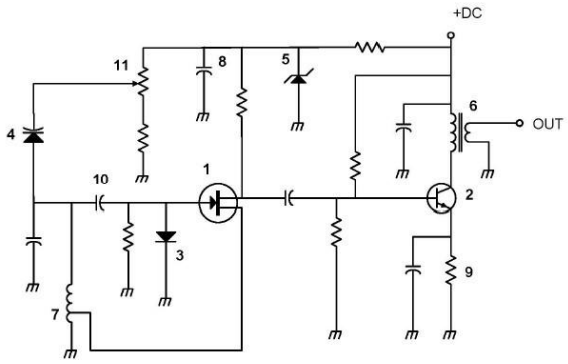

Figure G7-1

***¿ How many states does a 3-bit binary counter have? [G7B05]

- 6
- 16
- 8
- 3

***¿ What is the approximate length for a 1/4-wavelength monopole antenna cut for 28.5 MHz? [G9B12]

- 16 feet
- 11 feet
- 8 feet
- 21 feet

***¿What process combines two signals in a nonlinear circuit to produce unwanted spurious outputs? [G8B12]

- Intermodulation
- Detection
- Rolloff
- Heterodyning

***¿ How do charged particles reaching Earth from solar coronal holes typically affect long-distance radio communications? [G3A14]

- VHF/UHF channels are improved
- HF communications are disrupted
- HF communicat31 ions are improved
- VHF/UHF channels are disrupted

***¿In which of the following band segments may you operate if you are a Technician-class operator and have a Certificate of Successful Completion of Examination (CSCE) for General-class privileges? pG1D03]

- Only Technician band segments until your upgrade is published in the FCC database
- Only in Technician band segments until you have a receipt for payment of the FCC application fee
- In any General or Technician-class band segment
- In any General or Technician-class band segment except 30 meters and 60 meters

***¿Which of the following is included in the National Electrical Code? [G0B06]

- Human Body RF Exposure Limits
- Station Electrical Safety
- Acceptable Bandwidth Limits
- Acceptable Modulation Limits

***¿Which control is typically adjusted for proper ALC settings on a single-sideband (SSB) amateur transceiver? [G2A12]

- Attenuator level
- Transmit audio or microphone gain
- RF clipping level
- Antenna inductance or capacitance

***¿What is the purpose of an electronic keyer? [G4A10]

- To allow time for changing the antenna from the receiver to the transmitter
- Computer interface for PSK and RTTY operation
- Automatic generation of dots and dashes for CW operation
- Automatic transmit/receive switch

***In ARQ mode, ¿what does a NAK response to a transmitted packet mean? G8C05

- Complete file received correctly
- Request to retransmit the packet
- Receiving station connected and ready to transmit
- The packet was received without error

***¿What is the purpose of a corona ball on a mobile HF antenna? [G4E02]

- Reduce RF voltage discharge from the antenna tip while transmitting
- Reduce the possibility of damage if the antenna strikes an object
- Increase the antenna's "Q"
- Reduce the antenna's operating bandwidth

*** ¿What determines the performance of a ferrite core at different frequencies? [G6B01]

- The ratio of the outer diameter to the inner diameter
- Its conductivity
- Its thickness
- The composition or "mix" of the materials used

*** ¿What percentage of power loss is equivalent to a loss of 1 dB? [G5B10]

- 20.6 percent
- 25.9 percent
- 12.2 percent
- 10.9 percent

*** ¿What is another name for a Winlink Remote Message Server? [G2E13]

- Printer/Server
- RJ-45
- Terminal Node Controller
- Gateway

*** ¿What is a beta or hairpin match? [G9C11]

- A section of 300 ohm transmission line used to match a dipole antenna
- A cut transmission line placed at the feed point of a Yagi antenna to provide impedance matching
- A 1/4 wavelength section of 75 ohm coaxial cable in series with the feed point of a Yagi to provide impedance matching
- A series capacitor selected to cancel the inductive reactance of a dipole antenna

***¿What is the power limit for beacon stations? [G1B10]

- 10 watts PEP output
- 200 watts PEP output
- 20 watts PEP output
- 100 watts PEP output

*** ¿What circuit is used to select one of the sidebands of a balanced modulator? [G7C01]

- IF Amplifier
- Carrier Oscillator
- Filter
- RF Amplifier

***¿What part of the AC cycle is converted to DC by a full-wave rectifier? [G7A06]

- 180 degrees
- 360 degrees
- 270 degrees
- 90 degrees

***¿How does a higher sunspot count affect HF propagation? [G3A01]

- A higher sunspot count generally indicates a higher probability of good propagation at higher frequencies
- A sunspot count of zero indicates that radio propagation is not possible on any band
- A zero sunspot count indicates undisturbed conditions
- A lower sunspot count generally indicates a higher probability of sporadic E propagation

*** ¿Which of the following amateur radio bands is restricted to communications on specific channels, rather than a frequency range? [G1A04]

- 12 meters
- 11 meters
- 30 meters
- 60 meters

*** ¿Which of the following options most limits a mobile HF installation?

- Efficiency of the electrically short antenna
- FCC rules limiting mobile output power on the 75-meter band
- Wire gauge from the DC power line to the transceiver
- Picket fencing

*** ¿What is the effect of an improperly adjusted speech processor? [G4D03]

- Excessive intermodulation problems
- All of the alternatives are correct
- Excessive background noise
- Distorted voice

***¿ Which of the following factors determines the characteristic impedance of a power line with parallel conductors? [G9A01]

- The signal frequency and the line length
- The distance between the centers of the conductors and the line length
- The distance between the centers of the conductors and the radius of the conductors
- The radius of the conductors and the signal frequency

*** ¿ What is the common name for a dipole with a single center support? [G9D12]

- Slope
- “Lazy” H
- Inverted V
- Inverted

***¿What is the RMS voltage of a sine wave with a peak value of 17 volts? [G5B09]

- 12 volts
- 34 volts
- 8.5 volts
- 24 volts

*** ¿ What size fuse or circuit breaker would be appropriate for a circuit using 14 AWG wiring? [G0B03]

- 30 amps
- 15 amps
- 25 amps
- 20 amps

***¿Which stations are subject to the FCC RF exposure rules? [G0A12]

- Only stations transmitting more than 500 watts PEP
- All stations with a time-averaged transmission of more than one milliwatt
- All commercial stations; amateur radio stations are exempt
- Only stations with antennas located less than one wavelength above the ground

***¿What is a shift register? [G7B06]

- A clocked array of circuits that transmits data in steps along the array
- An analog mixer
- An array of operational amplifiers used for three-state arithmetic operations
- A digital mixer

*** ¿What is the advantage of using the opposite or "reverse" sideband when receiving CW? [G4A02]

- It may be possible to reduce or eliminate interference from other signals
- Accidental out-of-band operation can be prevented
- Interference from impulse noise is eliminated
- More stations can be accommodated within a given signal passband

***¿Which of the following statements is true regarding frequency access? [G2B01]

- Net calls always have priority.
- Contest operations must give way to non-contest use of frequencies.
- QSOs in progress have priority.
- Except during emergencies, no amateur radio station has priority access to any frequency

***¿What is reactance? [G5A02]

- Opposition to the flow of alternating current caused by capacitance or inductance
- Opposition to the flow of direct current caused by resistance
- Amplification of the flow of alternating current caused by capacitance or inductance
- Amplification of the flow of direct current caused by resistance

***¿What could go wrong if you can't decode an RTTY or other FSK signal even though it appears to be tuned correctly? [G2E14]

- All of the alternatives are correct.
- You may have selected the wrong baud rate.
- You may be listening on the wrong sideband.
- The marking and spatial frequencies may be reversed

***¿Which of the following describes an azimuthal projection map? [G2D04]

- A map showing actual bearings and distances from a specific location
- A map showing the angle at which an amateur satellite crosses the equator
- A map showing the number of degrees of longitude an amateur satellite appears to move westward from the equator with each orbit
- A map accurately showing land masses

***¿Which of the following is most commonly used for SSB voice communications in the VHF and UHF bands? [G2A03]

- Lower sideband
- Suppressed sideband
- Upper sideband
- Double sideband

***¿How do the lengths of a three-element Yagi reflector and director compare with that of the driven element? [G9C03]

- The reflector is longer, and the director is shorter.
- The reflector is shorter, and the director is longer.
- They all have the same length.
- The relative length depends on the operating frequency

***¿What is the maximum PEP output allowed for spread spectrum transmissions?? [G1E08]

- 100 watts
- 100 milliwatts
- 1500 watts
- 10 watts

***¿What must be done before using a new digital protocol on the air? [G1C07]

- Obtain an FCC experimental license
- Submit an FCC rulemaking proposal describing the technique's codes and methods
- Publicly document the protocol's technical specifications
- Equipment type certification according to FCC standards

***¿ What are the restrictions on the use of abbreviations or procedural signals in the Amateur Radio Service? [G1B07]

- They are not permitted
- They may be used if they do not obscure the meaning of a message
- Only "Q" signals are permitted
- They are limited to those specified in Part 97 of the FCC rules

***¿When is an analog multimeter preferable to a digital multimeter? [G4B09]

- When testing logic circuits
- When measuring the frequency of an oscillator
- When adjusting circuits for maximum or minimum values
- When high accuracy is desired

***¿ What is an SMA connector? [G6B11]

- A connector designed for serial multiple access signals
- A small threaded connector suitable for signals up to several GHz
- An S-type to M-type adapter
- A type of push-on connector intended for high-voltage applications

***¿Which of the following voice transmissions uses the narrowest bandwidth? [G8A07]

- Single Sideband (SSB)
- Vestigial Sideband
- Phase Modulation
- Frequency Modulation

***¿ What does “QRN” mean on the Q signal? G2C10

- There is a lot of static
- My signal is above zero
- Send slower
- Stop sending

***¿ Why soldered joints should not be used in lightning protection ground connections [G4C07]

- All alternatives are correct
- Soldering flux will prevent a low-conductivity connection
- A soldered joint will likely be destroyed by the heat of a lightning strike
- Solder has too high a dielectric constant to provide adequate lightning protection

***¿Which of the following best describes the radiation pattern of a quarter-wavelength ground-plane vertical antenna? G9B03

- Hemispherical
- Azimuth omnidirectional
- Isotropic
- Azimuth bidirectional

***¿Which of the following criteria must be met for a non-U.S. citizen to be accredited as a Volunteer Examiner (VE)? [G1D08]

- Neither of these options is correct; a non-U.S. citizen cannot be a Volunteer Examiner
- The person must be a U.S. resident for at least 5 years
- The person's citizenship must be in ITU Region 2.
- The person must have an FCC-issued amateur radio license of General Class or higher

***¿What is the inductance of three 10-millihenry inductors connected in parallel? [G5C10]

- 30 millihenries
- 3.3 millihenries
- 3.3 henries
- 0.30 henries

***¿Why is hop propagation through the F2 region longer than through the other ionospheric regions? [G3C03]

- Because of temperature inversions
- Because it is the densest
- Because of the Doppler effect
- Because it is the highest

***¿Which frequency will have the lowest attenuation for long-distance hop propagation? [G3B03]

- Just below the critical frequency
- Just above the critical frequency
- Just above the LUF
- Just below the MUF

***¿What is indicated on a waterfall display with one or more vertical lines on either side of a signal in data or RTTY mode? [G8C13]

- Overmodulation
- Undermodulation
- Long path propagation
- Backscatter propagation

***¿Which of the following is a characteristic of an electrolytic capacitor? [G6A04]

- Inexpensive RF capacitor
- Tight tolerance
- Much less leakage than any other type
- High capacitance for a given volume

***¿Which mixer input is modified or tuned to convert signals of different frequencies to an intermediate frequency (IF)? G8B01

- Image frequency
- Beat frequency oscillator
- Local oscillator
- RF input

***¿ What should be done to avoid standing waves on a feed line connected to an antenna? [G9A07]

- The feed line must have an even number of physical half wavelengths.
- The antenna feed point must be at DC ground potential.
- The feed line must have an odd number of electrical quarter wavelengths.
- The impedance of the antenna feed point must match the characteristic impedance of the feed line.

***¿ Which mode is most frequently used for voice communications on the 17 and 12 meter bands?? [G2A04]

- Lower sideband
- Double sideband
- Suppressed sideband
- Upper sideband

***¿Which of the following fused direct feed connections would be best for a 100-watt mobile HF installation? G4E03

- To the battery using heavy-duty insulated balanced transmission line
- To the battery using heavy-duty insulated balanced transmission line
- To the alternator or generator using heavy-duty insulated balanced transmission line
- To the alternator or generator using heavy-duty cable

***When selecting a CW transmission frequency, what minimum separation should be used to minimize interference to stations on adjacent frequencies? [G2B04]

- 150 Hz to 500 Hz
- 5 Hz to 50 Hz
- kHz to 3 kHz
- kHz to 6 kHz

***¿Why is it good to match the receiver bandwidth to the operating mode bandwidth? [G8B09]

- It improves antenna impedance matching
- It provides the best signal-to-noise ratio
- It minimizes receiver power consumption
- It is required by FCC rules

***¿What is the purpose of the power supply interlock? [G0B12]

- To shut down the unit if it becomes too hot
- To cut off power if excessive voltage is generated
- To ensure the elimination of dangerous voltages if the cabinet is opened
- To prevent unauthorized changes to the circuit that would void the manufacturer's warranty

***¿What is the output waveform of an unfiltered full-wave rectifier connected to a resistive load? [G7A07]

- A continuous DC voltage
- A series of DC pulses at the same frequency as the AC input
- A series of DC pulses at twice the frequency of the AC input
- A sine wave at half the frequency of the AC input

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***¿What type of modulation does FT8 use? G8A09

- Vessigial Sideband
- 8-bit Direct Sequence Spread Spectrum
- 8-Tone Frequency Shift Keying
- AM Amplitude Compressed

***¿What is a beta or hairpin match? G9C11

- A cut transmission line placed at the feed point of a Yagi antenna to provide impedance matching
- A section of 300 ohm transmission line used to match a dipole antenna
- A 1/4 wavelength section of 75 ohm coaxial cable in series with the feed point of a Yagi to provide impedance matching
- A series capacitor selected to cancel the inductive reactance of a dipole antenna

***¿How does a capacitor react to alternating current? G5A06

- As the amplitude of the applied AC increases, reactance increases
- As the amplitude of the applied AC increases, reactance decreases
- As the frequency of the applied AC increases, reactance decreases
- As the frequency of the applied AC increases, reactance increases

***¿In what direction(s) does an electrically small circuit (less than 1/10 wavelength in circumference) have nulls in its radiation pattern? [G9D10]

- In the plane of the loop
- Electrically small loops are omnidirectional
- Along the side of the loop
- Across and in the plane of the loop

***¿On what frequencies in the 10-meter amateur radio band may stations with a General-class control operator transmit CW? [G1A07]

- 28.025 MHz to 28.300 MHz only
- On the entire band
- 28.000 MHz to 28.025 MHz only
- 28.000 MHz to 28.300 MHz only

¿What is the inductance of a circuit with a 20-millihenry inductor connected in series with a 50-millihenry inductor? [G5C11]

- 7 millihenries
- 1,000 millihenries
- 14.3 millihenries
- 70 millihenries

***¿Which of the following statements is true about PSK31? [G8C08]

- Capital letters use longer Varicode bit sequences and therefore slow down transmission.
- Capital letters are sent with more power.Higher power is required compared to RTTY for similar error rates.
- Error correction is used to ensure accurate message reception

***¿How is the efficiency of an RF power amplifier determined? [G7B08]

- Add the RF input power to the DC output power
- Divide the RF output power by the DC input power
- Multiply the RF input power by the reciprocal of the RF output power
- Divide the DC input power by the DC output power

***¿How does a ferrite bead or core reduce common-mode RF current in a coaxial cable shield? [G6B10]

- Convert common-mode current to differential mode
- Creating an out-of-phase current to cancel the common-mode current
- Ferrites expel magnetic fields
- Creating an impedance for the current path

***¿Which of the following is a way to establish contact with a gateway station in a digital messaging system? [G2E10]

- Sending a QR code in Morse code
- Responding when the station broadcasts its SSID
- Sending an email to the system control operator
- Transmitting a connection message on the station's published frequency

***¿ What is the effect on plate current of properly adjusting the TUNE control of a vacuum tube RF power amplifier? [G4A04]

- A sharp peak
- A sharp decay
- No change will be observed
- A slow, rhythmic oscillation

***¿Which piece of test equipment contains horizontal and vertical channel amplifiers? [G4B01]

- An ammeter
- An ohmmeter
- An oscilloscope
- A signal generator

***¿ Why are signal reports typically exchanged at the beginning of an HF contact? [G2D11]

- To ensure the contact will count toward award programs
- To allow each station to calibrate its frequency display
- To follow the standard radiogram structure
- To allow each station to operate according to the conditions

***¿What does the Q signal "QRV" mean? [G2C11]

- I'm leaving for the day
- There's interference on the frequency
- You're sending too fast
- I'm ready to receive

***¿ What should you do if your station does not meet the FCC RF exposure exemption criteria? [G0A06]

- Conduct an RF exposure assessment in accordance with FCC OTS Bulletin 65
- Conduct an RF exposure assessment in accordance with World Meteorological Organization guidelines
- Use an FCC-approved band-pass filter
- Contact the FCC to request permission to transmit

***¿What is a possible effect of a resonant ground connection? [G4C06]

- High RF overloads on station equipment enclosures
- Ground rod corrosion
- Overheating of ground straps
- A ground loop

***¿How is a product detector used? [G7C04]

- It is used in test equipment to detect spurious mixing products
- It is used in the transmitter to perform frequency multiplication
- It is used in an FM receiver to filter out unwanted sidebands
- It is used in a single-sideband receiver to extract the modulated signal

***¿What is the transmitter power limit in the 1.8 MHz band? [G1C06]

- 1500 watts PEP output
- 1200 watts PEP output
- 200 watts PEP output
- 1000 watts PEP output

***¿How can elevated geomagnetic activity benefit radio communications? [G3A09]

- Reduces long-delay echoes
- Increases the strength of HF signals passing through the polar regions
- Creates auroras that can reflect VHF signals
- Improves long-range HF propagation

***¿ What is the minimum allowable discharge voltage to obtain maximum life from a standard 12-volt lead-acid battery? [G6A01]

- 10.5 volts
- 12 volts
- 8.5 volts
- 6 volts

***¿What does the term “critical angle” mean when applied to radio wave propagation? [G3C04]

- The highest takeoff angle that will return a radio wave to Earth under ionospheric conditions
- The long-path azimuth of a distant station
- The lowest takeoff angle that will return a radio wave to Earth under specific ionospheric conditions
- The short-path azimuth of a distant station

***¿In what part of the 2.4 GHz band can an amateur radio station communicate with unlicensed Wi-Fi stations? [G1E07]

- Nowhere
- Channels 42 to 45
- Channels 1 to 4
- Anywhere in the band

***¿What is the relationship between the total current and the individual currents in a parallel resistor circuit? [G5B02]

- It is the sum of the reciprocal of each individual voltage drop
- It is equal to the average of the branch currents
- It decreases as more parallel branches are added to the circuit
- It is equal to the sum of the currents in each branch

***¿Which of the following is a way to determine the current propagation on a desired band from your station? [G3B04]

- Send a series of points and listen for echoes
- All of the options are correct
- Check the A-index
- Use a network of automated receiving stations on the internet to see where your transmissions are being received

***¿Which of the following is an advantage of using a horizontally polarized HF antenna compared to a vertically polarized HF antenna? [G9B09]

- Lower radiation resistance point
- Shorter radials
- Lower ground losses
- Lower feed point impedance

***¿What organization accredits volunteer examiners? [G1D07]

- The Wireless Telecommunications Office
- The Federal Communications Commission
- The Universal Licensing System
- A Volunteer Examiner Coordinator

***¿What does an S-meter measure? G4D04

- Carrier suppression
- Transmitter output power
- Impedance
- Received signal strength

***¿Which of the following alternatives applies when FCC rules designate the Amateur Radio Service as a secondary user on a band? [G1A06]

- Amateur radio stations must not cause malicious interference to primary users and must accept interference from primary users
- Amateur radio stations must register the primary service station call sign before operating on the frequency assigned to that station
- Amateur radio stations may use the band only during emergencies
- Amateur radio stations may only operate during specific hours of the day, while primary users are permitted 24-hour use of the band

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- To prevent transient overmodulation
- To allow time for the amplifier's power supply to reach operating level
- To allow time for the amplifier to switch the antenna between the transceiver and the amplifier output
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*** ¿What is required to obtain a new General Class license after a previous license has expired and the two-year grace period has passed? G1D11

- Must have a letter from the FCC showing that they once held an amateur or commercial license
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***¿Why are long-distance communications on the 40, 60, 80, and 160-meter bands more difficult during the day? [G3C05]

- The F region is unstable during the day
- The F region absorbs signals on these frequencies during the day
- The D region absorbs signals on these frequencies during daylight hours
- The E region is unstable during the day

***¿Who can be the control operator of an amateur radio station transmitting on RACES to assist in disaster relief operations? G2B09

- A person holding an amateur operator license issued by the FCC or an appropriate government official
- Any control operator when normal communication systems are operating
- Only a RACES network control operator
- Only a person holding an amateur operator license issued by the FCC

***¿Which of the following requirements is necessary to participate in a contest on HF frequencies? [G2D09]

- Send a QSL card to the stations you work with or send a QSL through Logbook of the World
- All of the options are correct
- Identify your station according to normal FCC regulations
- Send a registration to the contest sponsor

***¿Which of these amplifier classes has the highest efficiency? [G7B02]

- Class C
- Class B
- Class A
- Class AB

***¿Why is it important to know the duty cycle of the mode being used when transmitting? [G8B08]

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- To help tune your transmitter
- Some modes have high duty cycles that can exceed the average power of the transmitter

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- Insufficient bandwidth
- Excessive bandwidth
- Insufficient audio
- Frequency deviation

***¿ What symptoms can result from interference from other signals with a PACTOR or VARA transmission? [G2E03]

- Frequent retries or timeouts
- All of the alternatives are correct
- Long pauses in message transmission
- Failure to establish a connection between stations

***¿What does the K index indicate? [G3A12]

- The short-term stability of the Sun's magnetic field
- The solar radio flux at Boulder, Colorado
- The relative position of sunspots on the Sun's surface
- The short-term stability of Earth's magnetic field

***¿How does forward error correction (FEC) allow the receiver to correct data errors? [G8C10]

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- By using a parity bit with each character
- By using the Varicode character set
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- Its power density
- All of the above are correct
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- Send slower
- We've worked together before
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***¿What is the typical upper frequency limit for low SWR operation of 50-ohm BNC connectors? [G6B04]

- 40 GHz
- 500 MHz
- 4 GHz
- 50 MHz

***¿What is the output voltage if an input signal is applied to the secondary winding of a 4:1 step-down voltage transformer instead of the primary winding? [G5C02]

- The output voltage is divided by 4
- Additional resistance must be added in series with the primary to prevent overloads
- Additional resistance must be added in parallel with the secondary to prevent overloads
- The output voltage is multiplied by 4

***¿What type of instrument can be used to accurately measure RF field strength? G0A09

- A calibrated field strength meter with a calibrated antenna
- An SWR meter with peak reading function
- A receiver with noise reduction via digital signal processing (DSP)
- An oscilloscope with a high-stability crystal marker generator

***¿What is required to communicate with a digital station operating under automatic control outside of the automatic control band segments? [G1E03]

- The station initiating the contact must be under local or remote control
- The interrogation transmission must be made by another automatically controlled station
- No third-party traffic may be transmitted
- The interrogation station control operator must have an Extra Amateur Class license

***¿What signal source is connected to the vertical input of an oscilloscope when checking the RF envelope pattern of a transmitted signal? [G4B04]

- The transmitter's balanced mixer output
- The transmitter's local oscillator
- The transmitter's attenuated RF output
- An external RF oscillator

***¿What is the approximate maximum distance along the Earth's surface that is typically covered in one hop using region E? [G3B10]

- 1,200 miles
- 12,000 miles
- 2,500 miles
- 180 miles

***¿What is the approximate forward threshold voltage of a silicon junction diode? [G6A05]

- 0.7 volts
- 0.3 volts
- 0.1 volts
- 1.0 volts

***¿Which of the following conditions must beacon stations meet? [G1B02]

- No more than one beacon station may transmit on the same band from the same station location
- The frequency must be published online or in a national newspaper
- All of the options are correct
- The frequency must be coordinated with the National Beacon Organization

***¿ What sound is heard on an audio device experiencing RF interference from a single-sideband voice transmitter? [G4C03]

- Distorted voice
- Intermittent buzzing or crackling
- A constant buzzing sound when the transmitter is on the air
- Clearly audible speech

***¿What is the characteristic of a half-wave rectifier in a power supply? [G7A04]

- Only one diode is needed
- The ripple frequency is twice that of a full-wave rectifier
- More current can be drawn from the half-wave rectifier
- The output voltage is twice the peak input voltage

***¿How does the antenna gain in dBi compare to the stated gain in dBd for the same antenna? [G9C04]

- The gain in dBd is 1.25 dBd greater
- The gain in dBd is 1.25 dBd less
- The gain in dBi is 2.15 dB less
- The gain in dBi is 2.15 dB greater

***¿What standing wave ratio results when connecting a 50-ohm power line to a 200-ohm resistive load? G9A09

- 1:2
- 1:4
- 4:1
- 2:1

***¿How much must the output power of a transmitter increase so that the S-meter reading of a distant receiver goes from S8 to S9? G4D07

- Approximately 4 times
- Approximately 8 times
- Approximately 2 times
- Approximately 1.5 time

***¿What is the maximum symbol rate allowed for RTTY or broadcast data transmitted on frequencies below 28 MHz? [G1C08]

- 300 baud
- 56 kilobaud
- 1200 baud
- 19.6 kilobaud

***¿How many watts are consumed when a current of 7.0 milliamps flows through a resistance of 1,250 ohms? [G4D07]

- Approximately 11 watts
- Approximately 11 milliwatts
- Approximately 61 watts
- Approximately 61 milliwatts

***¿Which of the following requirements must a lightning rod meet? G0B11

- They must be connected with all other grounds
- They must be connected to all buried water and gas pipes
- Bends in ground wires must be made as close to a right angle as possible
- Lightning grounds must be connected to all ungrounded cables

***¿What is the inverse of impedance called? [G5A07]

- Reluctance
- Admittance
- Usceptance
- Conductance

***¿Which of the following statements is true for single-sideband (SSB) voice mode? [G2A07]

- SSB is the only voice mode authorized on the 160-meter, 75-meter, and 40-meter amateur radio bands
- SSB is the only voice mode authorized on the 20-meter, 15-meter, and 10-meter amateur radio bands
- Only one sideband and the carrier are transmitted; the other sideband is suppressed
- Only one sideband is transmitted; the other sideband and the carrier are suppressed

***¿What precaution should be taken when connecting a solar panel to a lithium iron phosphate battery? [G4E11]

- The solar panel must have a charge regulator
- Ground the metal structure outside the solar panel
- Make sure the battery is installed with the terminals facing up
- There must be a series resistor

***¿Which of the following is a characteristic of a direct digital synthesizer (DDS)? [G7C05]

- Extremely narrow tuning range
- Variable output frequency with the stability of a crystal oscillator
- Relatively high output power
- Pure sine wave output

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- An oscilloscope with a high-stability crystal marker generator

¿What is required to communicate with a digital station operating under automatic control outside of the automatic control band segments? G1E03

- The station initiating the contact must be under local or remote control
- The interrogation transmission must be made by another automatically controlled station
- No third-party traffic may be transmitted
- The interrogation station control operator must have an Extra Amateur Class license

¿ What signal source is connected to the vertical input of an oscilloscope when checking the RF envelope pattern of a transmitted signal? G4B04

- The output of the transmitter's balanced mixer
- The transmitter's local oscillator
- The transmitter's attenuated RF output
- An external RF oscillator

¿ What is the approximate maximum distance along the Earth's surface that is typically covered in one hop using region E? G3B10

- 1,200 miles
- 12,000 miles
- 2,500 miles
- 180 miles

¿ What is the approximate forward threshold voltage of a silicon junction diode? G6A05

- 0.7 volts
- 0.3 volts
- 0.1 volt
- 1.0 volts

¿ Which of the following conditions must beacon stations meet? G1B02

- No more than one beacon station may transmit on the same band from the same station location.
- The frequency must be published on the internet or in a national newspaper.
- All of the options are correct.
- The frequency must be coordinated with the National Beacon Organization

¿What sound is heard on an audio device experiencing RF interference from a single-sideband voice transmitter? G4C03

- Distorted voice
- Intermittent buzzing or crackling
- A constant buzzing sound when the transmitter is on the air
- Clearly audible speech

¿ What are the characteristics of a half-wave rectifier in a power supply? G7A04

- Only one diode is needed
- The ripple frequency is twice that of a full-wave rectifier
- More current can be drawn from a half-wave rectifier
- The output voltage is twice the peak input voltage

¿How does the antenna gain in dBi compare to the stated gain in dBd for the same antenna? [G9C04]

- The gain in dBd is 1.25 dBd higher
- The gain in dBd is 1.25 dBd lower
- The gain in dBi is 2.15 dB lower
- The gain in dBi is 2.15 dB higher

¿What standing wave ratio results when connecting a 50 ohm power line to a 200 ohm resistive load? G9A09

- 1:2
- 1:4
- 4:1
- 2:1

¿How much must a transmitter's output power increase for a distant receiver's S-meter reading to go from S8 to S9? G4D07

- Approximately 4 times
- Approximately 8 times
- Approximately 2 times
- Approximately 1.5 times

¿What is the maximum symbol rate allowed for RTTY or broadcast data transmitted on frequencies below 28 MHz? [G1C08]

- 300 baud
- 56 kilobaud
- 1200 baud
- 19.6 kilobaud

¿ How many watts are consumed when a current of 7.0 milliamps flows through a resistance of 1,250 ohms?

- Approximately 11 watts
- Approximately 11 milliwatts
- Approximately 61 watts
- Approximately 61 milliwatts

¿Which of the following requirements must a lightning rod meet? G0B11

- They must be connected together with all other grounds
- They must be connected to all buried water and gas pipes
- Ground wire bends must be made as close to a right angle as possible
- Lightning grounds must be connected to all ungrounded wires

¿ What is the inverse of impedance called? G5A07

- Reactance
- Admittance
- Acceptance
- Conductance

¿ Which of the following statements is true for single-sideband (SSB) voice mode? [G2A07]

- SSB is the only voice mode authorized on the 160-meter, 75-meter, and 40-meter amateur radio bands
- SSB is the only voice mode authorized on the 20-meter, 15-meter, and 10-meter amateur radio bands
- Only one sideband and the carrier are transmitted; the other sideband is suppressed
- Only one sideband is transmitted; the other sideband and the carrier are suppresseduna banda lateral y la portadora ("carrier"); la otra banda lateral está suprimida

¿What precaution should be taken when connecting a solar panel to a lithium iron phosphate battery? G4E11

- The solar panel must have a charge regulator
- Ground the metal structure outside the solar panel
- Ensure the battery is installed with the terminals facing up
- There must be a series resistor

¿Which of the following is a characteristic of a direct digital synthesizer (DDS)? G7C05

- Extremely narrow tuning range
- Variable output frequency with the stability of a crystal oscillator
- Relatively high output power
- Pure sine wave output