Week 2 Amateur Radio General Questions

Effective July 1, 2015

General Chapter 5, Radio Signals and Equipment
General Chapter 6, Digital Modes

G1E03 (A) [97.221]
What is required to conduct communications with a digital station operating under automatic control outside the automatic control band segments?
A. The station initiating the contact must be under local or remote control
B. The interrogating transmission must be made by another automatically controlled station
C. No third party traffic maybe be transmitted
D. The control operator of the interrogating station must hold an Extra
Class license
~~

G1E11 (C) [97.221]
Which of the following is the FCC term for an unattended digital station that transfers messages to and from the Internet?
A. Locally controlled station
B. Robotically controlled station
C. Automatically controlled digital station
D. Fail-safe digital station
~~

G1E12 (A) [97.115]
Under what circumstances are messages that are sent via digital modes exempt from Part 97 third party rules that apply to other modes of communication?
A. Under no circumstances
B. When messages are encrypted
C. When messages are not encrypted
D. When under automatic control
~~

G1E13 (D) [97.221, 97.305]
On what bands may automatically controlled stations transmitting RTTY or data emissions communicate with other automatically controlled digital stations?
A. On any band segment where digital operation is permitted
B. Anywhere in the non-phone segments of the 10-meter or shorter wavelength bands
C. Only in the non-phone Extra Class segments of the bands
D. Anywhere in the 1.25-meter or shorter wavelength bands, and in specified segments of the 80-meter through 2-meter bands
~~

G2E - Digital operating: procedures, procedural signals and common abbreviations

G2E01 (D)
Which mode is normally used when sending an RTTY signal via AFSK with an SSB transmitter?
A. USB
B. DSB
C. CW
D. LSB
~~

G2E02 (B)
How can a PACTOR modem or controller be used to determine if the channel is in use by other PACTOR stations?
A. Unplug the data connector temporarily and see if the channel-busy indication is turned off
B. Put the modem or controller in a mode which allows monitoring communications without a connection
C. Transmit UI packets several times and wait to see if there is a response from another PACTOR station
D. Send the message: "Is this frequency in use?"
~~

G2E03 (D)
What symptoms may result from other signals interfering with a PACTOR or WINMOR transmission?
A. Frequent retries or timeouts
B. Long pauses in message transmission
C. Failure to establish a connection between stations
D. All of these choices are correct
~~

G2E04 (B)
What segment of the 20-meter band is most often used for digital transmissions?
A. 14.000 - 14.050 MHz
B. 14.070 - 14.100 MHz
C. 14.150 - 14.225 MHz
D. 14.275 - 14.350 MHz
~~

G2E05 (B)
What is the standard sideband used to generate a JT65 or JT9 digital signal when using AFSK in any amateur band?
A. LSB
B. USB
C. DSB
D. SSB
~~

G2E06 (B)
What is the most common frequency shift for RTTY emissions in the amateur HF bands?
A. 85 Hz
B. 170 Hz
C. 425 Hz
D. 850 Hz
~~

G2E07 (A)
What segment of the 80-meter band is most commonly used for digital transmissions?
A. 3570 – 3600 kHz
B. 3500 – 3525 kHz
C. 3700 – 3750 kHz
D. 3775 – 3825 kHz
~~

G2E08 (D)
In what segment of the 20-meter band are most PSK31 operations commonly found?
A. At the bottom of the slow-scan TV segment, near 14.230 MHz
B. At the top of the SSB phone segment, near 14.325 MHz
C. In the middle of the CW segment, near 14.100 MHz
D. Below the RTTY segment, near 14.070 MHz
~~

G2E09 (C)
How do you join a contact between two stations using the PACTOR protocol?
A. Send broadcast packets containing your call sign while in MONITOR mode
B. Transmit a steady carrier until the PACTOR protocol times out and disconnects
C. Joining an existing contact is not possible, PACTOR connections are limited to two stations
D. Send a NAK response continuously so that the sending station has to pause
~~

G2E10 (D)
Which of the following is a way to establish contact with a digital messaging system gateway station?
A. Send an email to the system control operator
B. Send QRL in Morse code
C. Respond when the station broadcasts its SSID
D. Transmit a connect message on the station’s published frequency
~~

G2E11 (D)
What is indicated on a waterfall display by one or more vertical lines adjacent to a PSK31 signal?
A. Long Path propagation
B. Backscatter propagation
C. Insufficient modulation
D. Overmodulation
~~

G2E12 (C)
Which of the following describes a waterfall display?
A. Frequency is horizontal, signal strength is vertical, time is intensity
B. Frequency is vertical, signal strength is intensity, time is horizontal
C. Frequency is horizontal, signal strength is intensity, time is vertical
D. Frequency is vertical, signal strength is horizontal, time is intensity
~~

G2E13 (A)
Which communication system sometimes uses the Internet to transfer messages?
A. Winlink
B. RTTY
C. ARES
D. Skywarn
~~

G2E14 (D)
What could be wrong if you cannot decode an RTTY or other FSK signal even
though it is apparently tuned in properly?
A. The mark and space frequencies may be reversed
B. You may have selected the wrong baud rate
C. You may be listening on the wrong sideband
D. All of these choices are correct
~~

SUBELEMENT G4 - AMATEUR RADIO PRACTICES [5 Exam Questions - 5 groups]

G4A – Station Operation and set up

G4A01 (B)
What is the purpose of the "notch filter" found on many HF transceivers?
A. To restrict the transmitter voice bandwidth
B. To reduce interference from carriers in the receiver passband
C. To eliminate receiver interference from impulse noise sources
D. To enhance the reception of a specific frequency on a crowded band
~~

G4A02 (C)
What is one advantage of selecting the opposite or "reverse" sideband when receiving CW signals on a typical HF transceiver?
A. Interference from impulse noise will be eliminated
B. More stations can be accommodated within a given signal passband
C. It may be possible to reduce or eliminate interference from other signals
D. Accidental out of band operation can be prevented
~~

G4A03 (C)
What is normally meant by operating a transceiver in "split" mode?
A. The radio is operating at half power
B. The transceiver is operating from an external power source
C. The transceiver is set to different transmit and receive frequencies
D. The transmitter is emitting an SSB signal, as opposed to DSB operation
~~

G4A04 (B)
What reading on the plate current meter of a vacuum tube RF power amplifier indicates correct adjustment of the plate tuning control?
A. A pronounced peak
B. A pronounced dip
C. No change will be observed
D. A slow, rhythmic oscillation
~~

G4A05 (C)
What is a reason to use Automatic Level Control (ALC) with an RF power amplifier?
A. To balance the transmitter audio frequency response
B. To reduce harmonic radiation
C. To reduce distortion due to excessive drive
D. To increase overall efficiency
~~

G4A07 (D)
What condition can lead to permanent damage to a solid-state RF power amplifier?
A. Insufficient drive power
B. Low input SWR
C. Shorting the input signal to ground
D. Excessive drive power
~~

G4A08 (D)
What is the correct adjustment for the load or coupling control of a vacuum tube RF power amplifier?
A. Minimum SWR on the antenna
B. Minimum plate current without exceeding maximum allowable grid current
C. Highest plate voltage while minimizing grid current
D. Maximum power output without exceeding maximum allowable plate current
~~

G4A09 (C)
Why is a time delay sometimes included in a transmitter keying circuit?
A. To prevent stations from interfering with one another
B. To allow the transmitter power regulators to charge properly
C. To allow time for transmit-receive changeover operations to complete properly before RF output is allowed
D. To allow time for a warning signal to be sent to other stations
~~

G4A11 (A)
Which of the following is a use for the IF shift control on a receiver?
A. To avoid interference from stations very close to the receive frequency
B. To change frequency rapidly
C. To permit listening on a different frequency from that on which you are transmitting
D. To tune in stations that are slightly off frequency without changing your transmit frequency
~~

G4A12 (C)
Which of the following is a common use for the dual VFO feature on a transceiver?
A. To allow transmitting on two frequencies at once
B. To permit full duplex operation, that is transmitting and receiving at the same time
C. To permit monitoring of two different frequencies
D. To facilitate computer interface
~~

G4A13 (A)
What is one reason to use the attenuator function that is present on many HF transceivers?
A. To reduce signal overload due to strong incoming signals
B. To reduce the transmitter power when driving a linear amplifier
C. To reduce power consumption when operating from batteries
D. To slow down received CW signals for better copy
~~

G4A14 (B)
What is likely to happen if a transceiver's ALC system is not set properly when transmitting AFSK signals with the radio using single sideband mode?
A. ALC will invert the modulation of the AFSK mode
B. Improper action of ALC distorts the signal and can cause spurious emissions
C. When using digital modes, too much ALC activity can cause the transmitter to overheat
D. All of these choices are correct
~~

G4A15 (D)
Which of the following can be a symptom of transmitted RF being picked up by an audio cable carrying AFSK data signals between a computer and a transceiver?
A. The VOX circuit does not un-key the transmitter
B. The transmitter signal is distorted
C. Frequent connection timeouts
D. All of these choices are correct
~~

G4B07 (B)
What signals are used to conduct a two-tone test?
A. Two audio signals of the same frequency shifted 90 degrees
B. Two non-harmonically related audio signals
C. Two swept frequency tones
D. Two audio frequency range square wave signals of equal amplitude
~~

G4B15 (A)
What type of transmitter performance does a two-tone test analyze?
A. Linearity
B. Percentage of suppression of carrier and undesired sideband for SSB
C. Percentage of frequency modulation
D. Percentage of carrier phase shift
~~

G4C - Interference with consumer electronics; grounding; DSP

G4C01 (B)
Which of the following might be useful in reducing RF interference to audio frequency devices?
A. Bypass inductor
B. Bypass capacitor
C. Forward-biased diode
D. Reverse-biased diode
~~

G4C02 (C)
Which of the following could be a cause of interference covering a wide range of frequencies?
A. Not using a balun or line isolator to feed balanced antennas
B. Lack of rectification of the transmitter's signal in power conductors
C. Arcing at a poor electrical connection
D. Using a balun to feed an unbalanced antenna
~~

G4C03 (C)
What sound is heard from an audio device or telephone if there is interference from a nearby single sideband phone transmitter?
A. A steady hum whenever the transmitter is on the air
B. On-and-off humming or clicking
C. Distorted speech
D. Clearly audible speech
~~

G4C04 (A)
What is the effect on an audio device or telephone system if there is interference from a nearby CW transmitter?
A. On-and-off humming or clicking
B. A CW signal at a nearly pure audio frequency
C. A chirpy CW signal
D. Severely distorted audio
~~

G4C05 (D)
What might be the problem if you receive an RF burn when touching your equipment while transmitting on an HF band, assuming the equipment is connected to a ground rod?
A. Flat braid rather than round wire has been used for the ground wire
B. Insulated wire has been used for the ground wire
C. The ground rod is resonant
D. The ground wire has high impedance on that frequency
~~

G4C06 (C)
What effect can be caused by a resonant ground connection?
A. Overheating of ground straps
B. Corrosion of the ground rod
C. High RF voltages on the enclosures of station equipment
D. A ground loop
~~

G4C07 (A)
What is one good way to avoid unwanted effects of stray RF energy in an amateur station?
A. Connect all equipment grounds together
B. Install an RF filter in series with the ground wire
C. Use a ground loop for best conductivity
D. Install a few ferrite beads on the ground wire where it connects to your station
~~

G4C08 (A)
Which of the following would reduce RF interference caused by common-mode current on an audio cable?
A. Placing a ferrite choke around the cable
B. Adding series capacitors to the conductors
C. Adding shunt inductors to the conductors
D. Adding an additional insulating jacket to the cable
~~

G4C09 (D)
How can a ground loop be avoided?
A. Connect all ground conductors in series
B. Connect the AC neutral conductor to the ground wire
C. Avoid using lock washers and star washers when making ground connections
D. Connect all ground conductors to a single point
~~

G4C10 (A)
What could be a symptom of a ground loop somewhere in your station?
A. You receive reports of "hum" on your station's transmitted signal
B. The SWR reading for one or more antennas is suddenly very high
C. An item of station equipment starts to draw excessive amounts of current
D. You receive reports of harmonic interference from your station
~~

G4C11 (B)
Which of the following is a function of a digital signal processor?
A. To provide adequate grounding
B. To remove noise from received signals
C. To increase antenna gain
D. To increase antenna bandwidth
~~

G4C12 (A)
Which of the following is an advantage of a receiver DSP IF filter as compared to an analog filter?
A. A wide range of filter bandwidths and shapes can be created
B. Fewer digital components are required
C. Mixing products are greatly reduced
D. The DSP filter is much more effective at VHF frequencies
~~

G4C13 (B)
Which of the following can perform automatic notching of interfering carriers?
A. Bandpass tuning
B. A Digital Signal Processor (DSP) filter
C. Balanced mixing
D. A noise limiter
~~

G4D - Speech processors; S meters; sideband operation near band edges

G4D01 (A)
What is the purpose of a speech processor as used in a modern transceiver?
A. Increase the intelligibility of transmitted phone signals during poor conditions
B. Increase transmitter bass response for more natural sounding SSB signals
C. Prevent distortion of voice signals
D. Decrease high-frequency voice output to prevent out of band operation
~~

G4D02 (B)
Which of the following describes how a speech processor affects a transmitted single sideband phone signal?
A. It increases peak power
B. It increases average power
C. It reduces harmonic distortion
D. It reduces intermodulation distortion
~~

G4D03 (D)
Which of the following can be the result of an incorrectly adjusted speech processor?
A. Distorted speech
B. Splatter
C. Excessive background pickup
D. All of these choices are correct
~~

G4D04 (C)
What does an S meter measure?
A. Conductance
B. Impedance
C. Received signal strength
D. Transmitter power output
~~

G4D05 (D)
How does a signal that reads 20 dB over S9 compare to one that reads S9 on a receiver, assuming a properly calibrated S meter?
A. It is 10 times less powerful
B. It is 20 times less powerful
C. It is 20 times more powerful
D. It is 100 times more powerful
~~

G4D06 (A)
Where is an S meter found?
A. In a receiver
B. In an SWR bridge
C. In a transmitter
D. In a conductance bridge
~~

G4D07 (C)
How much must the power output of a transmitter be raised to change the
S meter reading on a distant receiver from S8 to S9?
A. Approximately 1.5 times
B. Approximately 2 times
C. Approximately 4 times
D. Approximately 8 times
~~

G4D08 (C)
What frequency range is occupied by a 3 kHz LSB signal when the displayed carrier frequency is set to 7.178 MHz?
A. 7.178 to 7.181 MHz
B. 7.178 to 7.184 MHz
C. 7.175 to 7.178 MHz
D. 7.1765 to 7.1795 MHz
~~

G4D09 (B)
What frequency range is occupied by a 3 kHz USB signal with the displayed carrier frequency set to 14.347 MHz?
A. 14.347 to 14.647 MHz
B. 14.347 to 14.350 MHz
C. 14.344 to 14.347 MHz
D. 14.3455 to 14.3485 MHz
~~

G4D10 (A)
How close to the lower edge of the 40-meter General Class phone segment should your displayed carrier frequency be when using 3 kHz wide LSB?
A. At least 3 kHz above the edge of the segment
B. At least 3 kHz below the edge of the segment
C. Your displayed carrier frequency may be set at the edge of the segment
D. At least 1 kHz above the edge of the segment
~~

G4D11 (B)
How close to the upper edge of the 20-meter General Class band should your displayed carrier frequency be when using 3 kHz wide USB?
A. At least 3 kHz above the edge of the band
B. At least 3 kHz below the edge of the band
C. Your displayed carrier frequency may be set at the edge of the band
D. At least 1 kHz below the edge of the segment
~~

G4E03 (A)
Which of the following direct, fused power connections would be the best for a 100 watt HF mobile installation?
A. To the battery using heavy gauge wire
B. To the alternator or generator using heavy gauge wire
C. To the battery using resistor wire
D. To the alternator or generator using resistor wire
~~

G4E04 (B)
Why is it best NOT to draw the DC power for a 100 watt HF transceiver from a vehicle’s auxiliary power socket?
A. The socket is not wired with an RF-shielded power cable
B. The socket's wiring may be inadequate for the current drawn by the transceiver
C. The DC polarity of the socket is reversed from the polarity of modern HF transceivers
D. Drawing more than 50 watts from this socket could cause the engine to overheat
~~

G4E05 (C)
Which of the following most limits the effectiveness of an HF mobile transceiver operating in the 75-meter band?
A. "Picket Fencing" signal variation
B. The wire gauge of the DC power line to the transceiver
C. The antenna system
D. FCC rules limiting mobile output power on the 75-meter band
~~

G4E07 (D)
Which of the following may cause interference to be heard in the receiver of an HF radio installed in a recent model vehicle?
A. The battery charging system
B. The fuel delivery system
C. The vehicle control computer
D. All of these choices are correct
~~

G7B07 (D)
What are the basic components of virtually all sine wave oscillators?
A. An amplifier and a divider
B. A frequency multiplier and a mixer
C. A circulator and a filter operating in a feed-forward loop
D. A filter and an amplifier operating in a feedback loop
~~

G7B08 (B)
How is the efficiency of an RF power amplifier determined?
A. Divide the DC input power by the DC output power
B. Divide the RF output power by the DC input power
C. Multiply the RF input power by the reciprocal of the RF output power
D. Add the RF input power to the DC output power
~~

G7B09 (C)
What determines the frequency of an LC oscillator?
A. The number of stages in the counter
B. The number of stages in the divider
C. The inductance and capacitance in the tank circuit
D. The time delay of the lag circuit
~~

G7B10 (D)
Which of the following is a characteristic of a Class A amplifier?
A. Low standby power
B. High Efficiency
C. No need for bias
D. Low distortion
~~

G7B11 (B)
For which of the following modes is a Class C power stage appropriate for amplifying a modulated signal?
A. SSB
B. CW
C. AM
D. All of these choices are correct
~~

G7B12 (D)
Which of these classes of amplifiers has the highest efficiency?
A. Class A
B. Class B
C. Class AB
D. Class C
~~

G7B13 (B)
What is the reason for neutralizing the final amplifier stage of a transmitter?
A. To limit the modulation index
B. To eliminate self-oscillations
C. To cut off the final amplifier during standby periods
D. To keep the carrier on frequency
~~

G7B14 (B)
Which of the following describes a linear amplifier?
A. Any RF power amplifier used in conjunction with an amateur transceiver
B. An amplifier in which the output preserves the input waveform
C. A Class C high efficiency amplifier
D. An amplifier used as a frequency multiplier
~~

G7C - Receivers and transmitters; filters, oscillators

G7C01 (B)
Which of the following is used to process signals from the balanced modulator then send them to the mixer in some single sideband phone transmitters?
A. Carrier oscillator
B. Filter
C. IF amplifier
D. RF amplifier
~~

G7C02 (D)
Which circuit is used to combine signals from the carrier oscillator and speech amplifier then send the result to the filter in some single sideband phone transmitters?
A. Discriminator
B. Detector
C. IF amplifier
D. Balanced modulator
~~

G7C03 (C)
What circuit is used to process signals from the RF amplifier and local oscillator then send the result to the IF filter in a superheterodyne receiver?
A. Balanced modulator
B. IF amplifier
C. Mixer
D. Detector
~~

G7C04 (D)
What circuit is used to combine signals from the IF amplifier and BFO and send the result to the AF amplifier in some single sideband receivers?
A. RF oscillator
B. IF filter
C. Balanced modulator
D. Product detector
~~

G7C05 (D)
Which of the following is an advantage of a transceiver controlled by a direct digital synthesizer (DDS)?
A. Wide tuning range and no need for band switching
B. Relatively high power output
C. Relatively low power consumption
D. Variable frequency with the stability of a crystal oscillator
~~

G7C06 (B)
What should be the impedance of a low-pass filter as compared to the impedance of the transmission line into which it is inserted?
A. Substantially higher
B. About the same
C. Substantially lower
D. Twice the transmission line impedance
~~

G7C07 (C)
What is the simplest combination of stages that implement a superheterodyne receiver?
A. RF amplifier, detector, audio amplifier
B. RF amplifier, mixer, IF discriminator
C. HF oscillator, mixer, detector
D. HF oscillator, prescaler, audio amplifier
~~

G7C08 (D)
What type of circuit is used in many FM receivers to convert signals coming from the IF amplifier to audio?
A. Product detector
B. Phase inverter
C. Mixer
D. Discriminator
~~

G7C09 (D)
Which of the following is needed for a Digital Signal Processor IF filter?
A. An analog to digital converter
B. A digital to analog converter
C. A digital processor chip
D. All of the these choices are correct
~~

G7C10 (B)
How is Digital Signal Processor filtering accomplished?
A. By using direct signal phasing
B. By converting the signal from analog to digital and using digital processing
C. By differential spurious phasing
D. By converting the signal from digital to analog and taking the difference of mixing products
~~

G7C11 (A)
What is meant by the term "software defined radio" (SDR)?
A. A radio in which most major signal processing functions are performed by software
B. A radio that provides computer interface for automatic logging of band and frequency
C. A radio that uses crystal filters designed using software
D. A computer model that can simulate performance of a radio to aid in the design process
~~

SUBELEMENT G8 – SIGNALS AND EMISSIONS [3 Exam Questions – 3 Groups]

G8A - Carriers and modulation: AM; FM; single sideband; modulation envelope; digital modulation; overmodulation

G8A01 (B)
How is an FSK signal generated?
A. By keying an FM transmitter with a sub-audible tone
B. By changing an oscillator’s frequency directly with a digital control signal
C. By using a transceiver’s computer data interface protocol to change frequencies
D. By reconfiguring the CW keying input to act as a tone generator
~~

G8A02 (B)
What is the name of the process that changes the phase angle of an RF wave to convey information?
A. Phase convolution
B. Phase modulation
C. Angle convolution
D. Radian inversion
~~

G8A03 (D)
What is the name of the process that changes the instantaneous frequency of an RF wave to convey information?
A. Frequency convolution
B. Frequency transformation
C. Frequency conversion
D. Frequency modulation
~~

G8A04 (B)
What emission is produced by a reactance modulator connected to a transmitter RF amplifier stage?
A. Multiplex modulation
B. Phase modulation
C. Amplitude modulation
D. Pulse modulation
~~

G8A05 (D)
What type of modulation varies the instantaneous power level of the RF signal?
A. Frequency shift keying
B. Phase modulation
C. Frequency modulation
D. Amplitude modulation
~~

G8A06 (C)
What is one advantage of carrier suppression in a single sideband phone transmission versus full carrier amplitude modulation?
A. Audio fidelity is improved
B. Greater modulation percentage is obtainable with lower distortion
C. Available transmitter power can be used more effectively
D. Simpler receiving equipment can be used
~~

G8A07 (A)
Which of the following phone emissions uses the narrowest bandwidth?
A. Single sideband
B. Double sideband
C. Phase modulation
D. Frequency modulation
~~

G8A08 (D)
Which of the following is an effect of overmodulation?
A. Insufficient audio
B. Insufficient bandwidth
C. Frequency drift
D. Excessive bandwidth
~~

G8A09 (B)
What control is typically adjusted for proper ALC setting on an amateur single sideband transceiver?
A. The RF clipping level
B. Transmit audio or microphone gain
C. Antenna inductance or capacitance
D. Attenuator level
~~

G8A10 (C)
What is meant by the term flat-topping when referring to a single sideband phone transmission?
A. Signal distortion caused by insufficient collector current
B. The transmitter's automatic level control (ALC) is properly adjusted
C. Signal distortion caused by excessive drive
D. The transmitter's carrier is properly suppressed
~~

G8A11 (A)
What is the modulation envelope of an AM signal?
A. The waveform created by connecting the peak values of the modulated signal
B. The carrier frequency that contains the signal
C. Spurious signals that envelop nearby frequencies
D. The bandwidth of the modulated signal
~~

G8B - Frequency mixing; multiplication; bandwidths of various modes; deviation; duty cycle

G8B01 (A)
What receiver stage combines a 14.250 MHz input signal with a 13.795 MHz oscillator signal to produce a 455 kHz intermediate frequency (IF) signal?
A. Mixer
B. BFO
C. VFO
D. Discriminator
~~

G8B02 (B)
If a receiver mixes a 13.800 MHz VFO with a 14.255 MHz received signal to produce a 455 kHz intermediate frequency (IF) signal, what type of interference will a 13.345 MHz signal produce in the receiver?
A. Quadrature noise
B. Image response
C. Mixer interference
D. Intermediate interference
~~

G8B03 (A)
What is another term for the mixing of two RF signals?
A. Heterodyning
B. Synthesizing
C. Cancellation
D. Phase inverting
~~

G8B04 (D)
What is the stage in a VHF FM transmitter that generates a harmonic of a lower frequency signal to reach the desired operating frequency?
A. Mixer
B. Reactance modulator
C. Pre-emphasis network
D. Multiplier
~~

G8B05 (D)
What is the approximate bandwidth of a PACTOR3 signal at maximum data rate?
A. 31.5 Hz
B. 500 Hz
C. 1800 Hz
D. 2300 Hz
~~

G8B06 (D)
What is the total bandwidth of an FM phone transmission having 5 kHz deviation and 3 kHz modulating frequency?
A. 3 kHz
B. 5 kHz
C. 8 kHz
D. 16 kHz
~~

G8B07 (B)
What is the frequency deviation for a 12.21 MHz reactance modulated oscillator in a 5 kHz deviation, 146.52 MHz FM phone transmitter?
A. 101.75 Hz
B. 416.7 Hz
C. 5 kHz
D. 60 kHz
~~

G8B08 (B)
Why is it important to know the duty cycle of the mode you are using when transmitting?
A. To aid in tuning your transmitter
B. Some modes have high duty cycles which could exceed the transmitter's average power rating.
C. To allow time for the other station to break in during a transmission
D. All of these choices are correct
~~

G8B09 (D)
Why is it good to match receiver bandwidth to the bandwidth of the operating mode?
A. It is required by FCC rules
B. It minimizes power consumption in the receiver
C. It improves impedance matching of the antenna
D. It results in the best signal to noise ratio
~~

G8B10 (B)
What is the relationship between transmitted symbol rate and bandwidth?
A. Symbol rate and bandwidth are not related
B. Higher symbol rates require wider bandwidth
C. Lower symbol rates require wider bandwidth
D. Bandwidth is always half the symbol rate
~~

G8C – Digital emission modes

G8C01 (B)
Which of the following digital modes is designed to operate at extremely low signal strength on the HF bands?
A. FSK441 and Hellschreiber
B. JT9 and JT65
C. Clover
D. RTTY
~~

G8C02(A)
How many data bits are sent in a single PSK31 character?
A. The number varies
B. 5
C. 7
D. 8
~~

G8C03 (C)
What part of a data packet contains the routing and handling information?
A. Directory
B. Preamble
C. Header
D. Footer
~~

G8C04 (C)
Which of the following describes Baudot code?
A. A 7-bit code with start, stop and parity bits
B. A code using error detection and correction
C. A 5-bit code with additional start and stop bits
D. A code using SELCAL and LISTEN
~~

G8C05 (A)
In the PACTOR protocol, what is meant by an NAK response to a transmitted packet?
A. The receiver is requesting the packet be retransmitted
B. The receiver is reporting the packet was received without error
C. The receiver is busy decoding the packet
D. The entire file has been received correctly
~~

G8C06 (B)
What action results from a failure to exchange information due to excessive transmission attempts when using PACTOR or WINMOR?
A. The checksum overflows
B. The connection is dropped
C. Packets will be routed incorrectly
D. Encoding reverts to the default character set
~~

G8C07 (B)
How does the receiving station respond to an ARQ data mode packet containing errors?
A. It terminates the contact
B. It requests the packet be retransmitted
C. It sends the packet back to the transmitting station
D. It requests a change in transmitting protocol
~~

G8C08 (B)
Which of the following statements is true about PSK31?
A. Upper case letters make the signal stronger
B. Upper case letters use longer Varicode signals and thus slow down transmission
C. Varicode Error Correction is used to ensure accurate message reception
D. Higher power is needed as compared to RTTY for similar error rates
~~

G8C09 (A)
What does the number 31 represent in "PSK31"?
A. The approximate transmitted symbol rate
B. The version of the PSK protocol
C. The year in which PSK31 was invented
D. The number of characters that can be represented by PSK31
~~

G8C10 (C)
How does forward error correction (FEC) allow the receiver to correct errors in received data packets?
A. By controlling transmitter output power for optimum signal strength
B. By using the varicode character set
C. By transmitting redundant information with the data
D. By using a parity bit with each character
~~

G8C11 (D)
How are the two separate frequencies of a Frequency Shift Keyed (FSK) signal identified?
A. Dot and Dash
B. On and Off
C. High and Low
D. Mark and Space
~~

G8C12 (A)
Which type of code is used for sending characters in a PSK31 signal?
A. Varicode
B. Viterbi
C. Volumetric
D. Binary
~~