

## **SESSION 6**

### **Things to know**

1. If you hear a voice distress signal on a frequency outside of your license privileges, you are allowed to help on a frequency outside your privileges in any way possible
2. You may use your amateur station to transmit an "SOS" or "MAYDAY" in a life- or property-threatening emergency.
3. If a disaster disrupts normal communication systems in an area where the FCC regulates the amateur service, those kinds of transmissions that are necessary to meet essential communication needs and facilitate relief actions
4. Any special conditions and special rules to be observed during the emergency is the information that is included in an FCC declaration of a temporary state of communication emergency.
5. If you are in contact with another station and you hear an emergency call for help on your frequency, you should stop your QSO immediately and take the emergency call.
6. The proper way to interrupt a repeater conversation to signal a distress call is to say "BREAK" once, then your call sign.
7. One reason for using tactical call signs such as "command post" or "weather center" during an emergency is that they are more efficient and help coordinate public-service communications.
8. Messages concerning a person's health and welfare is the type of traffic that is sent into or out of a disaster area.
9. Emergency traffic is what messages are called that are sent into or out of a disaster area concerning the immediate safety of human life.
10. It is a good idea to have a way to operate your amateur station without using commercial AC power lines so you may provide communications in an emergency.
11. The most important accessory to have for a hand-held radio in an emergency are several sets of charged batteries.
12. A dipole type of antenna would be a good choice as part of a portable HF amateur station that could be set up in case of an emergency.
13. You must identify messages sent during a RACES drill as drill or test messages.
14. You must register before you can participate in RACES drills with the responsible civil defense organization.
15. Receiver overload is interference caused by strong signals from a nearby source.
16. A low-pass filter might be connected to an amateur HF transmitter to cut down on harmonic radiation.
17. A high-pass should be connected to a TV receiver as the first step in trying to prevent RF overload from an amateur HF station transmission.
18. A break in a cable television transmission line may cause TV interference when the amateur station is transmitting, or interference may occur to the amateur receiver.
19. If you are told that your amateur station is causing television interference, you should first make sure that your station is operating properly, and that it does not cause interference to your own television.
20. If harmonic radiation from your transmitter is causing interference to television receivers in your neighborhood, you alone are responsible, since your transmitter is causing the problem.

21. If signals from your transmitter are causing front-end overload in your neighbor's television receiver, the owner of the television receiver is responsible.
22. A band-pass filter blocks RF energy above and below certain limits.
23. If someone tells you that signals from your hand-held transceiver are interfering with other signals on a frequency near yours, your hand-held may be transmitting spurious emissions.
24. If an SSB transmitter is operated with the microphone gain set too high, it may cause splatter interference to other stations operating near its frequency.
25. A bad filter capacitor in the transmitter's power supply may cause a buzzing or hum in the signal of an HF transmitter.
26. The major cause of telephone interference is when the telephone was not equipped with interference protection when it was manufactured.
27. The name for the flow of electrons in an electric is current.
28. The name of a current that flows only in one direction is direct current (DC)
29. The name of a current that flows back and forth, first in one direction, then in the opposite direction is alternating current (AC)
30. The basic unit of electrical power is the watt.
31. The basic unit of electric current is the ampere.
32. An automobile battery usually supplies about 12 volts.
33. Resistance limits the current that flows through a circuit for a particular applied DC voltage.
34. The basic unit of resistance is the ohm.
35. The basic unit of inductance is the henry.
36. The basic unit of capacitance is the farad.
37. A rectifier circuit changes an alternating current signal into a varying direct current signal.
38. Ohm's Law is the formula that shows how voltage, current and resistance relate to each other in an electric circuit.
39. A current of 2 amperes flows through a 50-ohm resistor, the voltage across the resistor will be 100 volts.
40. If a 100-ohm resistor is connected to 200 volts, the current through the resistor is 2 amperes.
41. If a current of 3 amperes flows through a resistor connected to 90 volts, the resistance is 30 ohms.
42. If you increase your transmitter output power from 5 watts to 10 watts, this represents 3 (dB) increase does that represent.
43. If an ammeter marked in amperes is used to measure a 3000-milliampere current, the reading would show 3 amperes.
44. There are 1000 hertz in a kilohertz.
45. If a dial marked in megahertz shows a reading of 3.525 MHz, it show if it were marked in kilohertz, it would show 3525 kHz.
46. 1 microfarad is equal to 1,000,000 picofarads (pf)

47. If you have a hand-held transceiver with an output of 500 milliwatts, this would be 0.5 watts.
48. An analog circuit is the type of electric circuit that uses signals that can vary continuously over a certain range of voltage or current values.
49. A digital circuit is the type of electric circuit that uses signals that have voltage or current values only in specific steps over a certain range.
50. Of the following four type of modulation only Frequency-Modulated (FM) voice is an example of an analog communications method: Morse code (CW), Packet Radio, Frequency-modulated (FM) voice or PSK31.
51. Of the following only Radioteletype (TTY) is an example of a digital communications method: Single-sideband (SSB) voice, Amateur Television (ATV), FM voice or Radioteletype (RTTY).
52. Most humans can hear sounds in the 20 - 20,000 Hz frequency range.
53. We call electrical signals in the frequency range of 20 Hz to 20,000 Hz audio frequencies because the human ear can sense sounds in this range.
54. The lowest frequency of electrical energy that is usually known as a radio frequency is 20,000 Hz.
55. Electrical energy at a frequency of 7125 kHz is in the Radio frequency range.
56. If a radio wave makes 3,725,000 cycles in one second, this means the radio wave's frequency is 3725 kilohertz.
57. A PNP transistor is a component that can amplify a small signal using **low voltages**.
58. A vacuum tube is a component can amplify a small signal but normally uses **high voltages**.
59. Three good electrical conductors are Gold, silver, aluminum.
60. One reason resistors are used in electronic circuits is to control the amount of current that flows for a particular applied voltage.
61. If two resistors are connected in series, their total resistance is the sum of the individual resistor values.
62. One reason capacitors are used in electronic circuits is to block the flow of direct current while allowing alternating current to pass.
63. If two equal-value capacitors are connected in parallel, their total capacitance is twice the value of one capacitor.
64. A capacitor stores energy electrostatically and opposes a change in voltage.
65. A variable capacitor has two sets of rotating conducting plates separated by an insulator, which can be varied in surface area exposed to each other.
66. An inductor stores energy electromagnetically and opposes a change in current.
67. A diode controls current to flow in one direction
68. One advantage of using ICs (integrated circuits) instead of vacuum tubes is that ICs usually combine several functions into one package