

Amateur Radio Technician License Pre-Study

Name _____

TECHNICIAN CLASS PRIVILEGES (book pgs. 5-20)

Please bring your completed pre-study to the first class session.

1. Frequency range for HF? _____
2. Frequency range for VHF? _____
3. Frequency range for UHF? _____
4. You have voice privileges on this worldwide HF worldwide band. _____
5. CW – only privileges on these three bands? _____
6. Technician privileges include _____ bands for HF operation?
7. Voice band for Technician HF sky waves? _____
8. Four worldwide bands for Technician Class Morse code? _____

A LITTLE HAM HISTORY (book pgs. 21-26)

1. How many grades of ham radio licenses? _____
2. How many examiners to give you the Element 2 exam? _____
3. Can you jump over the entry level Tech test and go direct to the General Class test? _____

GETTING READY FOR THE EXAM (book pgs. 27-32)

1. How many test questions for Technician? _____
2. May the test wording be changed or modified? _____
3. Passing score? _____%
4. How many questions could you miss and still pass? _____
5. You receive this paper when you pass? _____
6. How many exam questions on Rules? _____
7. How many exam questions on math? _____
8. How many exam questions on antennas and feedlines? _____
9. Can exam questions be reworded? _____
10. May numerical values in questions be changed on your test? _____

ABOUT HAM RADIO & CALL SIGNS (book pgs. 33-50)

1. Minimum age for a ham radio license? _____
2. Who regulates and enforces the ham service? _____
3. Licenses are issued for _____ years.
4. Grace period for an expired license? _____

Amateur Radio Technician License Pre-Study

5. Give your call sign every _____ minutes.
6. Which language to identify your call sign? _____
7. Which ITU region are we in? _____
8. May you continue to transmit on an expired license? _____
9. Call signs in the United States begin with one of these 4 letters? _____
10. Maximum power allowed to radio control a “quad-copter”? _____
11. Call sign type with a single letter in prefix and suffix? (K7A) _____
12. Required club members for a club station license? _____
13. Which call sign area for a license in Florida? _____
14. A call sign type when identifying as “Race Headquarters”? _____
15. Who regulates ham radios aboard a US documented vessel on the high seas? _____

CONTROL (book pgs. 51-56)

1. Every transmitting station needs a _____ operator.
2. What type of control when using a handheld radio? _____
3. Mountaintop repeaters normally operate _____ control.
4. May a Technician control op transmit on General Class frequencies? _____
5. When may a control operator be “on the clock” while transmitting? _____
6. May a non-ham be designated as a control operator? _____
7. What type of control when operating your handheld radio? _____
8. What type of control for APRS? _____

MIND THE RULES (book pgs. 57-62)

1. What part of the Rules covers ham radio? _____
2. Prohibited transmissions? _____
3. How much power should you transmit? _____
4. May intentional SECRET code be transmitted over ham radio? _____
5. Normally, music is _____?
6. When may the FCC inspect your station? _____
7. What might result if the FCC can’t reach you by mail? _____
8. How much power SHOULD a ham operator use? _____
9. This radio service is protected from ham radio interference under all circumstances?

Amateur Radio Technician License Pre-Study

10. May we broadcast local city general news to the general public? _____
11. May we buy and sell ham radio gear on the air? _____

TECH FREQUENCIES (book pgs. 63-72)

1. What two letters stand for a radio emission? _____
2. Radio waves are considered _____.
3. Velocity of radio waves through free space? _____
4. Unit of radio frequency? _____
5. The abbreviation kHz stands for _____.
6. Frequency bands are usually called out in a _____.
7. 52 megahertz is located in which meter band? _____
8. 28.4 MHz is located in which meter band? _____
9. 146.52 MHz is located on which meter band? _____
10. 223.5 MHz is located on which meter band? _____
11. 432 MHz is located on which meter band? _____
12. To go from METERS to MEGAHERTZ, or MEGAHERTZ to METERS the magic division number is _____.
13. 28.5 MHz is how many kilohertz? _____
14. Ten meter worldwide voice privileges extend from 28._____ to 28._____ MHz.
15. Cycles per second? _____
16. Radio wave distance? _____
17. Frequency limits of the HF spectrum? _____
18. Frequency limits of the VHF spectrum? _____
19. UHF 70 cm national calling frequency? _____
20. Are band plans voluntary or FCC enforced? _____

YOUR FIRST RADIO (book pgs. 73-77)

1. Get your radio pre _____ by your local ham dealer or club.
2. Store favorite frequencies in your radio's _____.
3. Don't use a rubber duck inside your _____.
4. What type of modulation do we use for 2 meters and the 440 MHz band? _____

Amateur Radio Technician License Pre-Study

5. What is the advantage of SSB over FM when working satellites? _____
6. What device takes output on one band and produces output on another band? _____
7. The www for ham equipment reviews? _____
8. Abbreviation for mic transmit button? _____
9. Do rubber duck antennas all have the same connector? _____
10. Common emission for VHF Packet radio? _____
11. Common emission for VHF repeaters? _____
12. Bandwidth of a VHF repeater FM phone signal? _____

GOING SOLO (book pgs. 79-90)

1. Transmitting on the same frequency is called _____.
2. We use duplex when transmitting when transmitting through a _____.
3. When you test over the air, always give this. _____
4. What does CQ mean? _____
5. Interference from another station on frequency is called by which Q code? _____
6. This Q code means change frequency. _____
7. Someone asks "What is your QTH?" _____
8. Your friend is going QRT. This means _____
9. The locator system based on 1 degree latitude by 2 degrees longitude? _____
10. UHF signals on 440 MHz sometimes take a _____ off nearby buildings.
11. Squelch does this to background noise? _____
12. Abbreviation for tone controlled squelch system? _____
13. Always give your _____ when transmitting a test?
14. Before transmitting, always _____
15. Term for rapid fluttering signal from a mobile station? _____
16. Term for contacting as many stations as possible? _____

Amateur Radio Technician License Pre-Study

REPEATERS (book pgs. 91-97)

1. Repeaters transmit on their output and listen on their _____.
2. What is the term to describe transmitting on a repeater channel? _____plex.
3. What is the usual repeater offset for the 2 meter band? _____
4. What is the usual repeater offset for the 70 cm band? _____
5. Most repeaters also require CTCSS. What's this? _____
6. What else do you need to program in your handheld to access a local repeater? _____
7. The difference between repeater transmit and receive frequencies is called _____
8. Common difference between receive and transmit for repeaters on 2 meters? _____ MHz
9. Common repeater offset for 70 cm band? _____MHz
10. Say *this*, instead of CQ, on repeaters to announce that you are monitoring? _____?
11. Repeaters usually give their call sign in? _____

EMERGENCY! (book pgs. 99-104)

1. Which communications have the highest priority? _____
2. What does RACES stand for? _____
3. What does ARES stand for? _____
4. What does the term "check" mean? _____
5. What words do we use to indicate an emergency on the 2 meter band? _____
6. What Morse Code characters are sent in an emergency? _____
7. Do this before transmitting on an emergency net? _____
8. When passing emergency traffic, pass the message exactly as? _____
9. Use this alphabet when spelling unusual words? _____

WEAK SIGNAL PROPAGATION (book pgs. 105-112)

1. What do we call radio signals that travel through space? _____
2. Use "Knife-edge" propagation to transmit over _____.
3. A warm air inversion creates this type of propagation. _____

Amateur Radio Technician License Pre-Study

4. Catch a falling star and try this? _____
5. How many layers of the Ionosphere during the day? _____
6. What layer disappears at night? _____
7. When can you get 10 meter propagation? Day or night? _____
8. Skip is not reflections, but rather, _____
9. Signals that hug the Earth are called _____ waves.
10. The ionosphere will regularly skip frequencies, during the day, on these bands? _____
11. Does sunspot activity influence the ionosphere? _____
12. "Short skip" signals normally refract off which layer of the ionosphere? _____
13. Long range skip is refracted by this layer of the ionosphere, at the peak of the solar cycle? _____
14. Which characteristic of a radio wave describes its polarization? _____

TALK TO OUTER SPACE! (book pgs. 113-118)

1. 2. What does LEO stand for? _____
2. Signals that contain information about an on board satellite computer? _____
3. 4. What causes satellite signals to fade in and out? _____
4. Compensate for this shift when the satellite is approaching. _____
5. In the V/U mode, what band do you transmit on? _____
6. How much power should you use when transmitting to a satellite? _____
7. May a Technician Class operator talk with hams aboard the International Space Station? _____
8. _____ elements are input to a satellite tracking program? (starts with K)
10. Why are ham satellites slowly rotating in space? _____
11. What word describes a satellite's transmission of internal sensors? _____
12. What word describes how specific hams may control a satellite function? _____

YOUR COMPUTER GOES HAM DIGITAL! (book pgs. 119-126)

1. Is Morse Code a digital mode? _____
2. The device connected between your transceiver and computer? _____

Amateur Radio Technician License Pre-Study

3. What portion of your computer might decode digital signals? _____
4. What does CW stand for? _____
5. A _____ ham station connects other ham stations into the internet?
6. What does VoIP stand for? _____
7. What do IRLP and Echolink have in common? _____
8. Another name for fast scan television? _____
9. What does ARQ stand for? _____
10. Packet data signals may contain more _____ when traveling over multiple or reflections?
11. What does GPS stand for? _____
12. What does PSK stand for? _____

MULTI-MODE RADIO EXCITEMENT (book pgs. 127-135)

1. To operate satellite SSB, which emission mode? _____
2. What emission has the narrowest bandwidth? _____
3. How wide is the SSB voice signal? _____
4. What does RIT stand for? _____
5. The ability of a receiver to hear signals close together? _____
6. How wide is fast scan television? _____
7. A fancy name for your new two-way radio? _____
8. The emission type for a handheld VHF/UHF radio? _____
9. For a base or mobile radio to transmit MORE modes than just FM, we call that radio? _____
10. Which popular voice mode is used for long range 10 meter contacts? _____
11. Which has the narrowest bandwidth, FM or SSB? _____
12. What sideband do we use on 10 meters? _____
13. What word describes combining speech with an RF carrier signal? _____
14. An SSB signal is about 3,000 Hertz narrow. How many kHz is 3,000 Hz? _____ ??? kHz
15. Are all mobile and base station mic connectors wired the same way? _____

Amateur Radio Technician License Pre-Study

16. What word describes the ability of a receiver to detect weak signals? _____
17. What word describes a receiver's ability to discriminate between multiple signals? _____

RUN SOME INTERFERENCE PROTECTION (book pgs. 137-144)

1. On 10 meters, if your mic gain is too high, it could create this. _____
2. On 2 meters, speaking too softly will create under-_____.
3. A whistle on your handheld tied in to your car's 12 volts is likely from _____
4. What type of filter would you use to minimize harmonic emissions on your high frequency transmitter?

5. What snap on device may minimize interference on audio equipment? _____
6. Using shielded wire will prevent _____ of unwanted signals to and from the wire.
7. A small weather station transmitter falls under which part of the FCC Rules? _____

ELECTRONS – GO WITH THE FLOW! (book pgs. 145-157)

1. The name for EMF? _____
2. The flow of electrons _____
3. The opposition to the flow of electrons _____
4. What device stores a chemical charge? _____
5. Most ham radios require _____ volts for mobile operation.
6. Measure current with this _____.
7. _____ is measured in series, and _____ is measured in parallel.
8. A good insulator _____
10. A device that allows current to flow in only one direction _____
11. The unit of resistance _____
12. A variable resistance device _____
13. What device stores energy in a magnetic field? _____
1. 15. Which device stores energy in an electric field? _____
15. The unit of capacitance? _____

Amateur Radio Technician License Pre-Study

16. A device that turns on or off a circuit? _____
18. FET stands for _____
19. Which battery chemistry is most dangerous with an overcharge? _____
20. What are the two electrodes of a diode? _____
21. How is the cathode lead of a semiconductor diode usually identified? _____
22. Opposition to AC current flow in a circuit is called? _____
23. What component can be used as an electronic switch or amplifier? _____
24. What are the three electrodes of a PNP transistor? _____
25. What are the three electrodes of a field effect transistor? (FET) _____

IT'S THE LAW, PER MR. OHM! (book pgs. 158-162)

1. Draw 2 different types of Ohm's Law Circles.
2. Power equals _____ X _____.
3. Voltage equals _____ X _____.
4. If you are calculating current, it is Voltage divided by _____.
5. If you are calculating resistance, it is Voltage divided by _____.
6. Could they ever substitute different numbers than what is in the book on your upcoming examination? _____
7. What voltage across a 2 Ohm resistor with 0.5 amps flowing through it? _____
8. What is the current flowing through a 24 Ohm resistor connected across 240 volts? _____
9. What is the resistance with 3 amps current flow through a resistor connected to 90 volts? _____

PICTURE THIS! (book pgs. 163-174)

1. Draw the symbol for a resistor
2. Draw the symbol for a variable capacitor
3. Draw the symbol for an antenna

Amateur Radio Technician License Pre-Study

4. Draw a transistor symbol
5. Draw a chassis ground symbol
6. Draw a transformer symbol
7. Draw a diode symbol
8. Draw an LED symbol
9. Doubling your power output results in how much db gain? _____
10. A ten times increase in power will result in how much db gain? _____
11. What does LED stand for? _____
12. How many watts are 500 milliwatts? _____
13. A cold solder joint looks like this _____.
14. What will happen if you measure voltage with your multimeter on the resistance scale?
15. What do the 2 vertical lines represent in a transformer schematic? _____ core
16. Another name for a switch controlled by an electromagnet? _____
17. How many GHz on a dial that reads out 2425 MHz? _____
18. How many MHz is 28,400 kHz? _____
19. How many microfarads are 1,000,000 picofarads? _____

ANTENNAS (book pgs. 175-181)

1. What type of antenna is half wavelength, parallel to the Earth? _____
2. From tip to tip, how long is a half wave dipole for 10 meters? _____
3. Tip to tip, how long is a half wave dipole for 2 meters? _____
4. The electric field in a vertical antenna is _____ to the Earth.
5. What is the formula for calculating the length of a half wave dipole, if you know the frequency in MHz? _____
6. Which antenna concentrates energy in just one direction? _____

Amateur Radio Technician License Pre-Study

7. What's a popular sport that uses handheld, directional antennas? _____
8. If your antenna and that of the other station are cross polarized, your signal will get ____?
9. With a dipole, where is the radiation strongest? _____
10. Your new dipole has best lowest SWR just below the band. Do this to the dipole ends? _____
11. Best place to mount a VHF or UHF mobile antenna for uniform radiation patterns? _____
12. Another name for that antenna coil on the base of your 10 meter mobile short whip? _____

FEED ME WITH SOME GOOD COAX! (book pgs. 183-192)

1. Coax cable is round or flat? _____
2. Impedance of coax cable for ham use? _____ Ohms
3. Common coaxial cable connector for a mobile high frequency radio? _____
4. The larger the diameter of the cable, the lower the signal _____.
5. The ratio of forward power to reflected power is _____.
6. An SWR meter 4:1 means _____.
7. What device prevents signal radiation when testing your transmitter? _____
8. What is the coax connector called for your multimode radio? _____
9. What happens when moisture enters coax cable? _____
10. What does a dummy load consist of? _____

SAFETY FIRST! (book pgs. 193-206)

1. Good way to guard against shock? _____
2. The green wire in an AC power cord provides what? _____
3. An intentional weak link in a wiring circuit _____
4. Should you replace a blown 10 amp fuse with a 40 amp fuse? _____
5. Wear this when climbing an antenna tower _____
6. Make sure your antenna is well away from these _____
7. If on the ground looking up, always wear these to protect your eyes _____
8. Never climb a tower that has not been cranked _____

Amateur Radio Technician License Pre-Study

9. Use this for good RF grounding, not round wires _____
10. What is the device to help erect an antenna tower top section? _____
11. What frequency has the lowest MPE limit? _____ meters.
12. A good place for a magnetic mobile antenna on your car _____
13. If you touch a transmitting antenna you could get _____
14. Make sure your volt meter test leads are rated when measuring this type of voltage? _____
15. What might happen if you short out a 12 volt storage battery? _____
16. If time exposure to RF is measured at 6 minutes, what happens to RF exposure if the signal is only transmitting for half that time? _____
17. To minimize over-exposure to RF transmit radio waves, always run _____ amounts of transmit power.