

Gordon West's Pre-Study Q&A for the 2023-2027 General Class Course

Welcome to your weekend class pre-study homework. Your upcoming class is absolutely NOT a cram session, followed by the test. Rather, your course will take your textbook questions and answers and relate them to the real world of ham radio operating.

This pre-study material comes straight out of my Gordon West *General Class* book for the Element 3 question pool. The fill-in-the-blank questions in this pre-study guide follow the order of the book. We even give you topic page numbers to quickly spot the correct answer!

In addition to my Gordon West *General Class* book, this pre-study material also covers my exclusive audio CD course. The CD audio course is a fun way to hear the radio sounds behind some of these questions and answers.

This pre-study homework is for use out of the classroom. Your actual Element 3 examination will be multiple choice and all the easier. Preparation by taking random practice exams on the computer is both educational and a great double-check that you are passing the exams at a level that shows how well you will do on the real examination. You'll see the same questions, answers, and explanations of the correct answer on screen. This is a great way to study for those that prefer both reading the book and practice exams on screen. Begin by reading Chapter 1 of your *General Class* book and start filling in the home study answers. The topic page numbers will help! Be sure to bring your completed home study to the first class session.

For the Gordon West *General Class* book,
order from your local ham radio dealer or Amazon.

GENERAL CLASS PRIVILEGES (pages 1 - 8)

1. What sideband on 160 m, 75 m, and 40 m, upper or lower? _____
2. General voice limits on 75 m? _____
3. How much power output on 60 m? _____
4. What emission on 30 m? _____
5. What sideband on 20 to 10 m? Upper or lower? _____
6. General voice band limits on 20 m? _____
7. General voice band limits on 15 m? _____
8. General voice limits on 10 m? _____
9. 7.125 to 7.175 reserved for _____ class only!
10. As a new General, you get _____ of 10 meters!

A LITTLE HAM HISTORY (pages 9-16)

1. How old is the amateur radio service? _____
2. Approximately how many licensed USA hams? _____
3. In 1979, what requirement was eliminated for operation above 30 MHz? _____
4. In 2015, what requirement was eliminated for high frequency licensing? _____
5. When did VE testing begin? _____
6. Which test element is Element 4? _____

GETTING READY FOR THE EXAM (pages 17-22)

1. How many questions on your upcoming test? _____
2. How many questions in the entire Element 3 pool? _____
3. May examiners CHANGE the wording of the test? _____
4. What TOPIC covers question G1A04? _____
5. How can the blue key words help? _____
6. After my rearrangement, how many topic areas are there? _____

YOUR PASSING CSCE (pages 23 -25)

1. Append what two letters after my Technician call sign when I pass General Class? _____
2. After passing your General Class Exam, what Bands may you operate on? _____
3. What is required to re-obtain a General Class license? _____

YOUR NEW GENERAL BANDS (pages 26 - 32)

1. What formulas is used to convert frequency to wavelength? _____
2. What formula is used to convert wavelength to frequency? _____
3. General voice privileges on 20 meters? _____
4. General voice privileges on 40 meters? _____
5. How much power output ERP on 60 meters? _____
6. Maximum emission bandwidth on 60 meters? _____
7. Voluntary guideline for band usage? _____
8. We share these bands with Extras: _____

FCC RULES (pages 33 - 38)

1. What part of the Rules covers the amateur radio service? _____
2. What items would you put in your station log? _____
3. Who REALLY helps enforce the rules? _____
4. What is generally prohibited in ham radio rules? _____
5. An unlicensed person that you allow to talk on your ham radio is called a? _____
6. Do we have a third party agreement with Japan? _____
7. May I travel to Italy and operate with a CEPT? _____
8. When operating your U.S.A. home station remote control in a foreign country, do you need a U.S.A. license? _____
9. When operating a station in South America via INTERNET remote control from the U.S.A., which country's rules apply? _____
10. May 3rd party messages be sent via remote control if we have a third party agreement? _____
11. Use this antenna to locate a stuck carrier heading: _____

BE A VE! (pages 39 - 42)

1. How many VEs to conduct an exam? _____
2. Three General Class VE's may administer which test? _____
3. Who accredits individual volunteer examiners? _____
4. What age limit to become a VE? _____

VOICE OPERATION (pages 43 - 52)

1. What does 73 mean? _____
2. What does QSL stand for? _____
3. What would you say to break into an on-going conversation? _____
4. What does CQ DX mean? _____
5. How many kilohertz separation between SSB signals? _____
6. This circuit triggers your radio to transmit when you talk? _____
7. On what bands do we use lower SSB? _____
8. On what bands do we use upper sideband? _____
9. To judge band conditions, use a signal report at the _____ of a contact.

CW LIVES! (pages 53 - 61)

1. What does S-5 mean? _____
2. What does QSN stand for? _____
3. What does QSY mean? _____
4. Where do Beacon Stations operate on the 20 meter band? _____

DIGITAL OPERATING (pages 62 - 78)

1. Where on 20 meters might you find PSK 31 transmissions? _____
2. What does RTTY stand for? _____
3. How many data bits in a single PSK 31 character? _____
4. Greater digital rates require what kind of frequency shifts? _____
5. What is Forward Error Correction? _____

6. What type of modulation is used by FT8? _____
7. Where do amateurs operate operator MESH networks? _____
8. VARA and WinLink are a team? _____
9. Find an open frequency to return a FT8 CQ? _____
10. Data at 0,90,180, and 270 degrees is called _____ modulation.
11. Gains and losses = a _____ budget.
12. Lots of Gain will give you an improved _____ margin budget.
13. ARDEN MESH allows for _____ speedy comms.
14. Getting into the internet with a form of packet on VHF and HF describes _____
15. A remote Message Server is called a _____
16. Listen to the sound of FT8 at _____ MHz
17. Maximum symbol rate for RTTY below 28 MHz is a paltry _____ baud.
18. If one MESH node fails, will a packet get through maybe on another network node? _____
19. FT8 "+3" = _____ dB in a 2.5 kHz BW.
20. Name 3 systems for digital voice: DMR, _____, and _____-Star.

IN AN EMERGENCY (pages 79 - 82)

1. What emission mode is authorized for emergency communications? _____
2. First thing to find out when answering a distress call? _____
3. What does RACES stand for? _____
4. Always have a _____ - up frequency for a net.
5. RACES drills are allowed _____ hours per week.

SKYWAVE EXCITEMENT (pages 83 - 97)

1. Which furthest ionospheric layer refracts radio waves? _____
2. Which ionospheric layer absorbs radio waves? _____
3. What does MUF stand for? _____
4. Waves that hug the surface of the earth are called? _____
5. HF sky wave conditions usually happen every how many days? _____

6. What might you SEE during periods of high geomagnetic activity? _____
7. Which index tells short term stability of the Earth's magnetic field? _____
8. Charged particles take how many hours to reach the Earth? _____
9. Best band normally anytime for long range propagation? _____
10. Automated receiving stations will let you check _____ over the air!
11. The highest frequency which is refracted back to earth is called _____ frequency.

YOUR HF TRANSMITTER (pages 98 - 110)

1. What is the process changing your voice to an intelligible radio signal? _____
2. What circuit in a transmitter combines signals? _____
3. What does a speech processor accomplish? _____
4. What does ALC stand for? _____
5. Should you adjust your microphone gain for flat topping? _____
6. What test for linearity? _____
7. What emission from a reactance modulator? _____
8. Peak power to average power, multiply by this? _____
9. To convert average power to peak power, multiply by this? _____
10. Double or nothing: a two times gain equals how much in = db? _____
11. Are Class C amplifiers efficient? _____
12. Are Class A amplifiers linear? _____
13. Do this with your transmitter to minimize positive feedback? _____
14. To keep from blowing up your rig and amplifier, be sure and have a _____ line on the RF to amp.
15. Percentage of time a class A amplifier operates? _____ %
16. Double sideband is modulated RF from a _____ modulator.

YOUR RECEIVER (pages 111 – 119)

1. Which receiver stage processes signals from the RF amplifier and local oscillator? _____
2. What is a term for mixing 2 RF signals? _____
3. What does DSP stand for? _____

4. Which filter will automatically notch a tone? _____
5. What type of meter measures signal strength? _____
6. One S unit on receive = _____ dB change
7. The advantage of LCD over LED display on your new rig? _____ (in bright sunlight!)
8. Product detectors are found in _____ receivers.
9. Receiver sensitivity achieved by amplifier gain, and _____ and _____ noise figure.
10. A software defined receiver (SDR) performs filtering, _____, and _____.
11. Intermodulation products close to the original frequency, are they odd or even order? _____

OSCILLATORS & COMPONENTS (pages 120 - 130)

1. All oscillators have this? _____
2. What does LED stand for? _____
3. What is the junction threshold voltage of a germanium diode? _____
4. What type of display requires back lighting? _____
5. What does a shift register do? _____
6. What does ROM stand for? _____
7. What is a binary number? _____

ELECTRICAL PRINCIPLES (pages 131 - 143)

1. Draw Ohm's Law Circle: _____
2. Current is directly proportional to? _____
3. A half-wave rectifier works which portion of the cycle? _____
4. A full-wave rectifier works which portion of a cycle? _____
5. Which components are in a power-supply filter network? _____
6. Name a rechargeable battery? _____
7. How do we process sunlight into electricity? _____
8. Can you run your new HF radio using your automobile cigarette lighter plug? _____
9. How are solar panel cells interconnected in a panel? _____ - _____ .
10. To prevent overcharging from a solar panel, we use a solar panel _____.

CIRCUITS (pages 144 - 158)

1. In the schematic G7-1: What is #1? _____
2. What is #2? _____
3. What is #3? _____
4. What is #7? _____
5. What is #6? _____
6. What is #8? _____
7. How do resistors combine in series? _____
8. How do capacitors combine in parallel? _____
9. Reactance is the opposition to the flow of? _____
10. What is the unit of impedance? _____
11. What does a ferrite core do to a toroidal inductor? _____
12. A transformer's primary is conducted to? _____
13. Impedance will be _____ at resonance in a series LC circuit where $X_L = X_C$. (they cancel)
14. The inverse of impedance is _____.
15. What the heck IS impedance? The ratio of voltage to _____.
16. This letter represents reactance: _____
17. A 100 and 200 ohm resistor are in parallel, yielding _____ ohms resistance.
18. A transformer with a turns ratio of 3:1 will take 120 VAC on the primary to _____ volts on the secondary. (500 turns primary, 1500 turns on the secondary) Yup, 3:1, not the other way around!

GOOD GROUNDS and HF ANTENNAS (pages 159 - 180)

1. What is one reason for good grounding of your equipment? _____
2. How do you avoid a ground loop? _____
3. Formula for constructing a half wave dipole, end to end, in feet? _____
4. How long is a 1/4 wave vertical antenna for 20 meters? _____
5. Which antenna concentrates energy in one general direction? _____
6. What is the common match used with a Yagi antenna? _____
7. What might an antenna trap do? _____
8. What antenna type is constructed of square 1/4 wave elements? _____

9. What is the advantage of a log periodic antenna? _____
10. Why is impedance matching with an SWR analyzer important? _____
11. Which meter might indicate radiation patterns of an antenna? _____
12. What is ERP? _____
13. Antenna tuners may _____ your power to the antenna.
14. An antenna analyzer may read _____ if used in proximity of nearby transmitting antenna systems.
15. Where should a lightning ground system be located? Inside or outside a building? _____
16. Where should a lightning arrestor be located? In the feed line, or inside the radio?

COAX CABLE (pages 181 - 188)

1. What is the usual impedance of ham coax? _____
2. How is the percentage of power loss calculated? _____
3. What might be a poor SWR reading? _____
4. Big benefit of a type N connector? _____
5. SMA connectors are preferred on what bands? _____

RF and ELECTRICAL SAFETY (pages 189 - 197)

1. Wear this when climbing a tower? _____
2. Are indoor antennas safe? _____
3. What does MPE stand for? _____
4. Which circuit purposely disconnects AC line power with a fault detected? _____
5. How many amps for #14 wiring? _____
6. How many amps for #12 gauge wiring? _____
7. Danger of lead-tin solder? _____
8. Danger of a generator near your ham shack? _____
9. If your station does not meet RF exposure criteria, perform an RF _____ according to FCC OET Bulletin # _____
10. What stations are subject to RF exposure limits? _____ amateur stations!

**CONGRATULATIONS ON COMPLETING
YOUR PRESTUDY ASSIGNMENT!**

If you were able to complete most of this homework, you'll do fine on your up-coming General Class exam. Continue to review my book before class. When you pass the examination, be sure to send for your FREE graduation certificate and band charts. Page 205 & 206 gives you all the details.

I look forward to hearing you on the airwaves soon!

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Instructor's Guide
For the Gordon West 2023-2027-General Class Book

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