

Gordon West's Pre-Study Q&A for the 2015-19 General Class Course

Welcome to your weekend class pre-study homework. Your upcoming weekend class is absolutely NOT a cram session, followed by the test. Rather your weekend 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 the Gordon West *General Class* book for the 2015 through 2019 Element 3 question pool. The fill-in-the-blank questions in this pre-study guide follow the exact order of the book. We even give you page numbers to quickly spot the correct answer!

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

This pre-study homework is fill-in-the blank. Your actual Element 3 written examination will be a multiple choice exam – all the easier.

This fill-in-the blank homework also parallels the computer home study course. Taking sample exams on the computer is fun, educational, and a double-check that you will do well on the upcoming written examination.

Begin reading over your *General Class* book, and start filling in the home study answers. The page numbers will help! Be sure to bring your completed home study to the first class session.

To order the Gordon West *General Class* book, go to
www.w5yi.org
or call 1-800-669-9594

GENERAL CLASS PRIVILEGES (pages 1 - 8)

1. What sideband on 160 m, 75 m, and 40 m, upper or lower? _____ p 2
2. General voice limits on 75 m? _____ p 3
3. How much power output on 60 m? _____ p 3
4. What emission on 30 m? _____ p 4
5. What sideband on 20 – 10 m? Upper or lower? _____ p 4 + 5
6. General voice band limits on 20 m? _____ p 4
7. General voice band limits on 15 m? _____ p 5
8. General voice limits on 10 m? _____ p 5
9. On which 3 bands did we recently gain additional voice spectrum? _____ p 8

A LITTLE HAM HISTORY (pages 9 - 16)

1. How old is the amateur radio service? _____ p 9
2. Approximately how many licensed USA hams? _____ p 9
3. In 1979, what requirement was eliminated for operation above 30 MHz? _____ p 10
4. On Feb. 23, 2015, what requirements were eliminated for high frequency licensing? _____ p 10
5. When did VE testing begin? _____ p 12
6. Which test element is Element 3? _____ p 13
7. Which test element is Element 4? _____ p 13
8. Must you learn the code to pass a test? _____ p 11
9. Why should all hams know Morse code? _____ p 11

GETTING READY FOR THE EXAM (page 17 - 22)

1. How many questions on your upcoming test? _____ p 17
2. How many questions in the entire Element 3 pool? _____ p 18
3. May examiners CHANGE the wording of the test? _____ p 17
4. What TOPIC covers question G1AO4? _____ p 19
5. How can the blue key words help? _____ p 22
6. After my rearrangement, how many topic areas are there? _____ p 21
7. How many questions can I miss and still pass? _____ p 17

YOUR PASSING CSCE (page 23 - 25)

1. What does CSCE stand for? _____ p 23
2. Append these two letters after my Technician Class call sign when I pass General: _____ p 24

YOUR NEW GENERAL BANDS (pages 26 - 33)

1. What formulas to convert frequency to wavelength, and wavelength to frequency? _____ p 26
2. General voice privileges on 15 meters? _____ p 28
3. General voice privileges on 40 meters? _____ p 29
4. How much power output ERP on 60 meters? _____ p 30
5. General voice privileges on 75 meters? _____ p 31
6. Voluntary guideline for band usage? _____ p 32
7. Where on 10 meters can we find beacons? _____ p 33

FCC RULES (pages 34 - 41)

1. What part of the Rules covers the amateur radio service? _____ p 36
2. What items would you put in your station log? _____ p 35
3. Who REALLY helps enforce the rules? _____ p 35
4. What is generally prohibited in ham radio rules? _____ p 37
5. What do we call a person who talks over your ham radio, with no license,
with you in charge? _____ p 40
6. Do we have a third party agreement with Japan? _____ p 41
7. May I travel to Italy and operate with a CEPT? _____ p 40

BE A VE! (pages 42 - 43)

1. How many VEs to conduct an exam? _____ p 42
2. Three General Class VE's may conduct which test? _____ p 42
3. Who accredits individual volunteer examiners? _____ p 42
4. What age limit to become a VE? _____ p 43

VOICE OPERATION (pages 44 - 53)

1. What does 73 mean? _____ p 44
2. What does QSL stand for? _____ p 44
3. What would you say to break into an on-going conversation? _____ p 46
4. What does CQ DX mean? _____ p 46
5. How many kilohertz separation between SSB signals? _____ p 48
6. This circuit triggers your radio to transmit when you talk? _____ p 49
7. On what bands do we use lower SSB? _____ p 53
8. On what bands do we use upper sideband? _____ p 52
9. What band is channelized for only 5 channels? _____ p 3

CW LIVES! (pages 54 - 61)

1. What does QRS mean in Morse code? _____ p 56
2. What does QSL stand for? _____ p 56
3. Will you be tested for Morse code in class? _____ p 11
4. What is the big benefit in knowing code? _____ p 61

DIGITAL OPERATING (pages 62 - 75)

1. Where might you find 20 meter PSK 31 transmissions? _____ p 66
2. What does RTTY stand for? _____ p 64
3. How many data bits in a single PSK 31 character? _____ p 65
4. Greater digital speeds require _____ frequency shifts? P 67
5. For digital operation, your ham set needs to be tied into what? _____ p 64
6. What is the name of sending photographs over high frequency? _____ p 52

IN AN EMERGENCY (pages 77 - 79)

1. What emission mode is authorized for emergency communications? _____ p 77
2. First thing to find out when answering a distress call? _____ p 77
3. What does RACES stand for? _____ p 78

SKYWAVE EXCITEMENT (pages 80 - 96)

1. Which furthest ionospheric layer refracts radio waves? _____ p 80 - 81
2. Which ionospheric layer absorbs radio waves? _____ p 85
3. What does MUF stand for? _____ p 82
4. Waves that hug the surface of the earth are called? _____ (ground waves)
5. HF scatter signals usually sound? _____ p 88
6. Area too far for ground waves, yet too close for sky waves? _____ p 88
7. How long is a sun spot cycle? _____ p 90
8. HF sky wave conditions usually happen every _____ days? p 91
9. Which index tells short term stability of the Earth's magnetic field? _____ p 92
10. What might you SEE during periods of high geomagnetic activity? _____ p 93-94
11. Charged particles take _____ hours to reach the Earth? p 94
12. Best band anytime for long range propagation? _____ p 95

YOUR HF TRANSMITTER (pages 97 - 110)

1. What is the name of the process changing your voice to an intelligible radio signal? _____ p 97
2. What circuit in a transmitter combines signals? _____ p 97
3. What does a speech processor accomplish? _____ p 99
4. What does ALC stand for? _____ p 100
5. Should you adjust your microphone gain for flat topping? _____ p 101
6. What test for linearity? _____ p 102
7. What emission from a reactance modulator? _____ p 106
8. Peak power to average power, multiply by this? _____ p 107
9. Average power to peak power, multiply by this? _____ (1.414)
10. Double or nothing – a two times gain = _____ db? P 108
11. Are Class C amplifiers efficient? _____ p 109
12. Are Class A amplifiers linear? _____ p 109
13. Do this with your transmitter to minimize positive feedback? _____ p 104

YOUR RECEIVER (pages 111 - 117)

1. Which receiver stage processes signals from the RF amplifier and local oscillator? _____ p 112
2. What is a term for mixing 2 RF signals? _____ p 112
3. What does DSP stand for? _____ p 113
4. Which filter will automatically notch a tone? _____ p 116
5. What type of meter measures signal strength? _____ p 116

OSCILLATORS & COMPONENTS (pages 119 - 131)

1. All oscillators have this? _____ p 119
2. What is the junction threshold voltage of a Germanium diode? _____ p 121
3. What type of display requires back lighting? _____ p 124
4. What does LED stand for? _____ p 124
5. What does a shift register do? _____ p 129
6. What does ROM stand for? _____ p 129

ELECTRICAL PRINCIPLES (pages 132 - 143)

1. Draw Ohm's Law Circle p 132
2. Ohm's Law circle for power? _____ p 134
3. A half-wave rectifier works which portion of the cycle? _____ p 135
4. A full-wave rectifier works which portion of a cycle? _____ p 136
5. Which components are in a power-supply filter network? _____ p 137
6. Name a rechargeable battery? _____ p 139
7. How do we process sunlight into electricity? _____ p 139
8. Can you run your new HF radio using your automobile cigarette lighter plug? _____ p 141

CIRCUITS (pages 146 - 161)

1. In the schematic G7-1: What is #1? _____ p 147
2. What is #2? _____ p 147
3. What is #12? _____ p 146
4. What is #7? _____ p 147
5. What is #6? _____ p 147
6. What is #8? _____ p 146
7. How do resistors combine in series? _____ p 149
8. How do capacitors combine in parallel? _____ p 151
9. Reactance is the opposition to the flow of? _____ p 153
10. What is the unit of impedance? _____ p 155
11. What does a ferrite core do to a toroidal inductor? _____ p 158
12. A transformer's primary is conducted to? _____ p 159

GOOD GROUNDS and HF ANTENNAS (pages 162 - 187)

1. What is one reason for good grounding of your equipment? _____ p 162
2. Do we ground with wide foil strap or big round wires? _____ p 163
3. What creates the musical whine in your automobile ham set? _____ (alternator!)
4. Formula for constructing a half wave dipole, end to end, in feet? _____ p 167
5. How long is a 1/4 - wave vertical antenna for 20 meters? _____ p 172
6. Which antenna concentrates energy in one general direction? _____ p 172
7. What is the common match used with a Yagi antenna? _____ p 175
8. What might an antenna trap do? _____ p 177

9. What antenna type is constructed of square $\frac{1}{4}$ wave elements? _____ p 178
10. What is the advantage of a log periodic antenna? _____ p 182
11. Why is impedance matching with an SWR analyzer important? _____ p 185
12. Which meter might indicate radiation patterns of an antenna? _____ p 186

COAX CABLE (pages 188 - 198)

1. What is the usual impedance of ham coax? _____ p 189
2. What is the impedance of flat ribbon twin lead? _____ p 190
3. What might be a poor SWR reading? _____ p 195
4. Big benefit of a type N connector? _____ p 197
5. Which antenna is seen on page 174? _____ p 174

RF and ELECTRICAL SAFETY (pages 199 - 207)

1. Wear this when climbing a tower? _____ p 200
2. Are indoor antennas safe? _____ p 200
3. What does MPE stand for? _____ p 200
4. What might RF energy do to your eyes? _____ p 201
5. Which circuit purposely disconnects AC line power with a fault detected? _____ p 204
6. How many amps for #14 wiring? _____ p 205
7. How many amps for #12 gauge wiring? _____ p 205
8. Danger of lead-tin solder? _____ p 206
9. Danger of a generator near your ham shack? _____ p 207

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 the book before class. You also can take practice exams on your computer using our W5YI software (available from The W5YI Group – 800-669-9594 or on-line at www.w5yi.org).

When you pass the examination, be sure to send for your FREE graduation certificate and band charts. Page 214 gives you all the details.

I look forward to seeing or hearing you on the airwaves soon!

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Instructor's Guide
For the Gordon West 2015-19 General Class

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