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## Study Guide Introduction:

There is one resource you should not neglect: Your teacher and fellow students (if you are taking an organized course). Also, experienced Hams are famous for acting as "Elmers" who help new Hams get "On the Air." As much as you might dread the prospect of asking for extra help, it's worth it. It will make the entire experience of obtaining your license much more enjoyable.

Get a copy of the ARRL publication *Now You're Talking*. You can find a copy of this book at your local Radio Shack store along with other study books and materials. It is also available by mail-order direct from the ARRL. They have a catalog available with several other informative books and video tapes.

The information you will have to assimilate for the FCC written tests falls into two categories:

- a) There are things that fit into a framework of knowledge and generally make for interesting reading. For example, "An ATU is useful BECAUSE an antenna may not present a perfect match BECAUSE..." This type of knowledge leads you onwards, like an interesting plot in a work of fiction.
- b) Then there is the other stuff; collections of disconnected facts that don't have any particular explanation except "these are the rules. For example: "Novices can work on this section on the 10 Meter Band." or "Novices can work on that section of the 40 Meter Band."

You can only learn this type of knowledge by memorization; there are no short-cuts. For these questions, just keep reading the facts and drilling with NuTest. You will eventually absorb the information. One person who scored 100% in the tests has this advice: "Every morning, while groggy eyed and still half asleep, randomly open the book to any given page and stare blindly at it. In a few months, you will have absorbed all of those 'silly' questions that you just have to memorize anyway."

## **"But I can't do math!!"**

There is nothing in the Element 2, 3(a), or 3(b) that is above fourth-grade level. The formulae required for the questions on the Element 4(a) and 4(b) exams are more complex, but the math itself isn't any harder. The hardest thing involved is knowing how to figure a percentage.

## **Your Study Environment:**

- Have a good surface, such as a large table or desk of your own. Not the kitchen table if you can help it.
- Find a place where you can organize your materials, lay out papers and books and keep them there; set up your own office.
- If you are using your computer, it needs its own separate spot.
- Work by a good light, not a dim or irritating one.
- The whole room should be well lit. You should have a desk lamp over your papers and reading materials.
- Avoid phones, people, pets, players (audio and video), and refrigerators.
- As far as study is concerned, your television is dangerous. It is so easy to watch! Try to stick to a viewing schedule. Decide what programs you want to watch and plan for them in advance. Make a note of when they are on and watch only them rather than channel surfing at random.
- If possible, get someone else to take your phone calls.
- Stay comfortable and cool, with good ventilation. Open the window a bit, drink ice water or cola. Ice water has mysterious study-inducing properties.
- Sit in a good chair, one that is high, firm, comfortable, with good support.
- Take breaks and switch topics frequently. You should not work for more than an hour straight. Your lunch break at work might be a good time to study.
- Keep the breaks short. Take a walk or have a cup of coffee.

## **Planning Study Sessions:**

Some people will feel happy planning their study periods for specific sections of the syllabus. For example you might plan to spend three one-hour sessions studying Ohms law. Other people prefer to plow through their study materials from start to finish, in one-hour sessions. When you are running NuTest it is useful to study the incorrect options as well as the correct one. Compare the correct answer with the incorrect ones to find the differences between them.

### **Suggested plan for one hour of study:**

1. Skim through the planned section to familiarize yourself with content and themes. Don't try to read each word or think too hard; just get a sense of the material.
2. Then give a slower, more thorough reading to soak up the important details.
3. When you are tired after an hour or so, stop. At the end of a study session a final skim will help you solidify your understanding.

## **A Suggested Method for Taking the Test:**

1. Skim through the test entirely. Establish your strategy.
2. Immediately answer whatever questions you know. Don't waste time pulling your hair out over something that you won't get. Mark troublesome questions and go back to them later. Often, when you return to a problem, you suddenly think of a new way to approach it.
3. Try to complete the test. Return to the harder questions and do as many as possible. If you are still unsure of the correct answer, try to rule out responses you know are wrong.
4. Check your work and complete the hardest problems of all, the long shots. In a multiple-choice test it is better to choose an answer at random than to make no choice at all.

## **Administration of FCC Examinations:**

Volunteer Examiners (VE's) administer amateur radio license test sessions. The team consists of three General or higher class Volunteer Examiners (VE's) who are accredited by the FCC. One of them will be the Volunteer Examination Coordinator (VEC). To locate a VE team (VET) near you contact the American Radio Relay League at the following address:

ARRL/VEC

225 Main Street

Newington, CT 06111-1494

Telephone: (203) 666-1541

Fax: (203) 665-7532

E-Mail: [vec@arrl.org](mailto:vec@arrl.org) (Volunteer Examiner Coordinator)

## Test Format:

The test format is multiple-choice. The format of the test will be very close to the format of the printed sample exams that the NuTest program generates. It is important to realize that the questions and answers in any FCC test come from the published FCC question pools. These are the same pools used by NuTest. The examination team must select from the question pools. They cannot any changes to the content of the questions or the answers.

A specified number of questions from the pool will make up each subelement. For specific details of the subelement contents take a look at the Options page of NuTest. The Options page gives information on the currently selected license class.

In each question you select the correct answer from four options. One of the answers will be the correct one. Apart from the correct option there is usually an option that is obviously wrong. Finally, there will be two options that look correct and differ from the correct answer only slightly. So, carefully read **all** the choices before choosing your answer. If two answers seem correct, be sure to choose the **best** answer.



## Things to Bring to the Test Session:

- The **original** copy of your FCC license or any previously awarded Certificates of Successful Completion of Examinations awarded during the last year.
- A **photocopy** of your FCC license or previously attained "Certificate of Successful Completion of Examination."
- Two forms of Personal **Identification** that have your photograph on them.
- Several sharp **pencils** and a **pen** with black or blue-black ink.
- A simple hand-held **calculator**. Do not bring one that can be programmed to store formulas or text.
- The test **fee** of about \$6.00 in cash.
- A letter from your doctor stating if you have any special requirements due to physical handicaps. If you require this, you should arrange it with the VE team before the test. This is to ensure that they have any necessary special equipment available.
- An FCC Form 610 will normally be available at the test location.

## What to Expect at a Typical Test session:

Test sessions are usually held in the evening. Usually a classroom at a local college or a community meeting hall will be used. Sessions may be held at weekly, monthly, or longer intervals depending on demand and availability of the VE team.

At the beginning of the test session, there will be a registration period where everyone pays their fees and picks up their copy of FCC Form 610. Normally a registration sheet for your name, address, license class, and etc. will also be distributed for the VEC's records. The VE's will assist you with filling out the FCC Form 610.

Next, the exam papers and answer sheets will be distributed. You will be allowed as much time as you require to complete the written exam. When you are finished you will indicate this to one of the VE's by raising your hand. The VE will pick up your paper. The V.E.'s grade each paper while you wait and you will get your results, good or bad, right at the testing session. After grading the tests, there is a final session when the "Certificate of Successful Completion of Examination" is filled out and signed by both the VE's and the applicant. Finally, there is some hand shaking congratulations given before everyone goes home.

If anyone is found to be cheating during the exam, the entire testing session will be invalidated. **Everyone** will go home without a completion certificate, even if they passed.

If you are taking the Element 1a or Element 2 tests (Novice), you can do so without **paying the test fee**. For Elements higher than this, you will have to pay the fee.

If you pass a test, you are free to attempt the next higher element **without paying another test fee**. If you study hard and prepare to pass more than one test at a time, this can save you money. If you studied hard enough, you could come in with no license at all and walk out with your Extra class after only paying only one test fee! When you pass a test, it is a good idea to attempt the next higher element. This will give you some practice at taking it.

If you do not pass an exam, you may (at the V.E.'s discretion) be allowed to pay another test fee and try again **during** the same test session. However, don't forget that the V.E.'s are Volunteer Examiners. They attend test the session on their own time without pay. They may not be able to stay late while someone makes multiple attempts at getting through the exam.

Be aware that if there is a shortage of rooms, code exams are sometimes given during the written exam **in the same room**. It is not unknown for applicants to take ear plugs to a test session!.

Some VEC's now submit the test results to the FCC electronically by E-Mail. Using this method, it is possible to get new callsigns back from the FCC on the same day as the test results are submitted. This means that you can get on the air very quickly, since all you require is your call sign to begin to legally use your new license privileges. Postal submissions can take 3 - 6 weeks.

## What Elements You Need to pass:

This information is summarized from the FCC Part 97 rules:

Extra Class	1(C)	2	3(A)	3(B)	4(A)	4(B)
Advanced Class	1(B)	2	3(A)	3(B)	4(A)	*
General Class	1(B)	2	3(A)	3(B)	*	*
Technician Plus Class	1(A)	2	3(A)	*	*	*
Technician Class	*	2	3(A)	*	*	*
Novice Class	1(A)	2	*	*	*	*

