Below, are errors and typos found in the 2016 version of the *No-Nonsense Extra Class License Study Guide*. Please feel free to e-mail me at cwgeek@kb6nu.com if you find any others....Dan

In section E3A, the sentence explaining the answer to question E3A11 reads:

> The typical range for tropospheric propagation of microwave signals is **1200 miles**. (E3A11)

It should read:

> The typical range for tropospheric propagation of microwave signals is **100 miles to 300 miles**. (E3A11)

In the equation showing how the answer to question E5A12 is calculated, there is a typo. It currently reads:

\[
BW = \frac{f}{Q} = \frac{3.5 \times 10^6}{118} = 31.4 \times 10^3 = 31.4 \text{ kHz}
\]

It should read:

\[
BW = \frac{f}{Q} = \frac{3.7 \times 10^6}{118} = 31.4 \times 10^3 = 31.4 \text{ kHz}
\]

In section E5D, the second paragraph reads:

> Capacitors store electrical energy in an electrostatic field. During the positive portion of an AC cycle, the capacitor stores energy in its electrostatic field, but during the negative portion of the cycle, it returns that energy to the circuit.

Perhaps a better explanation is:

> Capacitors store electrical energy in an electric field. As the voltage increases from 0 V to the positive peak voltage, or decreases from 0 V to the negative peak voltage, the charge on the capacitor increases and the capacitor stores energy in the electric field. As the voltage decreases from the positive peak voltage, or increases from the negative peak voltage, the capacitor returns that energy to the circuit.

Similarly, perhaps a better explanation for the energy stored in an inductor’s magnetic field is:

> A similar thing happens to the magnetic field created by the current flow through an inductor that happens to the electric field in a capacitor. The strength of the magnetic field, and therefore the energy stored in that field, increases as the current increases (in either the positive or negative direction). When the current begins to decrease, the magnetic field begins to collapse, and the energy from the field is returned to the circuit.
In the section “Field effect transistors,” the second paragraph reads:

FETs are normally made with a technology called Complementary Metal-Oxide Semiconductor, or CMOS. The initials CMOS stand for Complementary Metal-Oxide Semiconductor. (E6A13) FETs made with CMOS technology are sometimes call MOSFETs.

A better explanation would be:

FETs in an integrated circuit are often made with a technology called Complementary Metal-Oxide Semiconductor, or CMOS. The initials CMOS stand for Complementary Metal-Oxide Semiconductor. (E6A13) CMOS integrated circuits use complementary N-channel and P-channel MOSFETS to create amplifiers or logic circuits.

There is a typo in the equation used to calculate the number of turns needed to produce a 5-microhenry inductor using a powdered-iron toroidal core that has an inductance index (AL) value of 40 microhenries/100 turns. The equation should read:

\[ N = 100 \times \sqrt{\frac{5}{40}} = 100 \times 0.353 = 35.3 \text{ turns} \]

Note that the answer is correct.

Question E7A08 was changed, but the current study guide still references the old question. The paragraph explaining E7A08 currently reads:

Other types of gates perform different logical functions. The logical operation that a NOR gate performs is that it produces a logic "0" at its output if any or all inputs are logic "1." (E7A08) Table E7-2 shows a truth table that describes the logical operation of a NOR gate.

It should read:

Other types of gates perform different logical functions. The logical operation that an OR gate performs is that it produces a logic "1" at its output if any or all inputs are logic "1." (E7A08) Table E7-2 shows a truth table that describes the logical operation of an OR gate.

Table E7-2 should read:

<table>
<thead>
<tr>
<th>2-INPUT OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>
In the last paragraph of section E7A, there is a typo. Instead of “monostable vibrator,” it should read “monostable multivibrator.”

Add this sentence to the paragraph in E7B that starts, “A Class D amplifier...”:

Switching amplifiers are more efficient than linear amplifiers because the power transistor is at saturation or cutoff most of the time, resulting in low power dissipation. (E7B14)

In section E7B, there is a paragraph that reads:

In Figure E7-2, the purpose of R is to provide emitter load. (E7B13) In Figure E7-2, the purpose of C2 is to provide output coupling. (E7B14)

It should read:

In Figure E7-2, the purpose of R is to provide emitter load. (E7B13) In this circuit, C2 provides output coupling.

Question EA801 was changed, but the current study guide still references the old question. The paragraph explaining question EA801 currently reads:

Perhaps the most common digital wave form is the square wave. An ideal square wave alternates regularly and instantaneously between two different values. An interesting fact is that a square wave is the type of wave that is made up of a sine wave plus all of its odd harmonics. (E8A01)

It should read:

Perhaps the most common digital wave form is the square wave. An ideal square wave alternates regularly and instantaneously between two different values. A square wave of a certain frequency is made up of a sine wave at that frequency plus all of its odd harmonics. The name of the process that shows that a square wave is made up of a sine wave plus all of its odd harmonics is Fourier analysis. (E8A01) Fourier analysis can be used to determine the frequency content of any type of signal.
Question E8D05: The correct answer should be **increase keying waveform rise and fall times.**

There is a typo in the equation that shows how the answer to question E9A15 is calculated. It currently reads:

\[
\text{effective radiated power} = 150\text{W} \times 1.905 = 268 \text{ W}
\]

It should read:

\[
\text{effective radiated power} = 150\text{W} \times 1.905 = 286 \text{ W}
\]

In the second paragraph in section E9E, there is a typo. The word “waver” should be “wave.”