Questions and Answers

ECE 2300 – February 11, 2014 – Dr. Dave Shattuck

Q: So, in this final step, what is equivalent resistance as seen from A and B? (Next to this, this student drew two resistances in parallel, one labeled REQ and one labeled 29[Ohm].)

A: You would find this equivalent resistance by combining the two resistances in parallel. For some reason, you seem to think that the 29[Ohm] resistor is special because it is directly between the two terminals named. It is not special. It gets combined in the same way as the other resistances.

Q: Can you explain more about open and circuit and give example?

A: I do not think so. I think you just need to work some problems, and it will become clear. But, if I am wrong, feel free to ask again, and I will see if I cannot find another way to explain open circuits and short circuits.

Q: Could an elephant be a voltage source? Or any organism for that matter?

A: Yes. In fact, most multi-cell organisms can act as a voltage source, or a current source. Have you ever heard of an EKG? That is a device that measures the voltages produced across a variety of parts of the body, to diagnosis issues with the heart. Have you heard of an EEG? That is a device that measures the voltages produced across a variety of parts of the head, to diagnosis issues with the brain. We measure voltages in nerve cells to study how those nerve cells work, or to student how various other parts of the body work. The guy in the lab next to me, when I was in graduate school, measured the voltages in the optic nerves of horseshoe crabs, to study visual systems, to understand better how our eyes work. So, yes, most definitely, an elephant can be a voltage source.

Q: When asking for REQ with respect to a terminal, does that mean that we will be plugging something into that terminal?

A: Yes. There would be no reason to ask the question if we were not going to do that.

Q: When a resistor is short-circuited, you turn it into an open circuit then turn it into a wire, correct?

A: No, that is not correct. When a resistor is short-circuited, you need the current to be zero, so you replace the resistor with an open circuit. Do not put in a wire where the resistor was. Then you would have two wires in parallel, and this would not be an appropriate model.

Q: If you have a potassium ion chicken and make it eat two cockroaches connected to a 24[V] battery, what will be the product of the system?

A: Fertilizer.

Q: I am still unclear about the application of VDR and CDR. Is there anyway you can give us a few more quick examples during class?

A: No, I am afraid we are too far behind for that. You can come to see me in my office, if you like.

Q: Is there a slide for short circuit? I believe I understand it, but I want to be certain.

A: I am not aware of any such slide. If anyone does know of one, please share it with us.

Q: How in the world are we going to do these problems with limited time on the exam?

A: I hope that you will do them, carefully, neatly, and systematically. That way you get more points. I also hope that you will practice before the exam, so that you can do them more easily.

Q: Why do your write “wrong” as “rong”.

A: Because I like to use a wrong spelling for wrong. It is ironically ironic. This appeals to me.

Q: Does it matter if we change the order of problems on the quiz, exam, or homework? For example, instead of 1, 2, 3, we do 2, 1, 3?

A: It does not matter on the quizzes. It does not matter on the exams, as long as you indicated where the work is. However, it ***does*** matter on the homework. The TA’s job is hard enough as it is. For the homework, do the problems in order.

Q: What do you mean be “find equivalent resistance as seen by A and B”. I get how to reduce the circuit with equivalent elements, but what would be the final answer to this question?

A: The final answer will be a resistance value, to apply to a resistance placed between A and B. Then, when you connect the elephant to A and B, the elephant would not be able to tell the difference.

Q: If I needed more help or practice, is there anywhere you would suggest where I can see the answer after I solve it to see where I am making mistakes?

A: There are, at last count, about 43 semesters worth of old exams and quizzes available on the course web page. Most of those semesters have six or more quizzes and three or more exams, each with three or more problems with solutions. This means there are roughly 1000 or so problems worked out with solutions, and many of them with the problem stated, and the solution given later. This allows you to practice on them, with a suggested time allotment, and then consult the solution later. Add to that the Dr. Dave Project files, which have even more detailed solutions. Frankly, I would be shocked if you could find such a resource anywhere else on earth. Use it!

Q: How do I know if something is short-circuited?

A: If you find a wire across it, it is short-circuited.

C: (I am paraphrasing the following comment, for editorial purposes.) So, I took your recommendation. I decided to use an online match making service. However, because of poor decision making skills, I used a site, and now I am married to a woman that may have been a bad choice for me. I feel that you are somewhat responsible for this.

R: Maybe. Still, now it is your responsibility to make your marriage work. When it comes to marriage, love is a verb, not an emotion. However, we are getting away from circuits topics, so I am going to stop here.

C: To the person who loves Dr. Dave, 1.25 carats is not enough.

R: Still, that would be 1.25 carats more than any diamond I own right now. I do not measure the size of love by the number of carats.

Q: Do you actually read through all of the cards?

A: Yes, I do. Every single card. Every single time. Without fail. I do not always answer them, but I read all of them, every time.