Two of the following five essay questions will appear on your midterm exam. The questions have been written for you to reflect upon our discussions and readings in hopes you might see the big picture, and become a more knowledgeable person. Please form your answers in the context of the textbook readings, and class lectures and discussion, and limit each response to one page.

Note. Pontificating will be a detriment to your grade.

1. During our class discussions, we applied models in different ways. Discuss the role modeling plays in the design of a database. Include in your discussion its purpose and objectives. Based on our discussions in class and the textbook, why is it important that it be done prior to the implementation of the actual database? What are some of the (design) modeling techniques and methods that have been presented thus far?

2. Given your JR.com logical database design, identify three (different) attributes that (different types of) data integrity would be of major concerns. Explain how data integrity applies to them, and the objective of and means (i.e., how) for implementing such constraints.

Note. Your discussion should include at least (i.e., a minimum of) three different types of data integrity applied to three different attributes (i.e., no overlap or redundancy).

3. Given the following relations (to be given during the exam), identify three ways in which they can be denormalized and explain their benefits (i.e., advantages) and consequences (i.e., disadvantages). Identify specific anomalies (that apply) and discuss their effects on the denormalized relation.

4. Contrast the objectives of data normalization and denormalization. Explain why each is done and the products of each (i.e., what is produced). Why is each important? What does each accomplish? Why is it important that one come before the other?

5. Discuss the activities and tangibles associated with your logical database design for JR.com. Be specific and provide sufficient detail.

General Rule: At the most, a textbook answer is considered only an average answer (i.e., 15 out of 20 points or 75 percent of 20). Remember, the exam’s emphasis is on conceptual understanding and not rote memory. Thus, bullet points and lists are not deemed appropriate for responses. Your responses should reflect integrative thought expressed in written English.
Other points to be aware of:

- Greater points are awarded when integrative thought is evident in your answers. Providing detail works to your advantage. Points will be reduced for false, irrelevant or unsubstantiated statements. *Essentially, you need to express your understanding of the material.* Even though you may possess a good understanding of the material, it can only be judged in your responses.

- Bullet points and lists are not considered appropriate responses.

- Points cannot be awarded to answers that are illegible. Please take the time to write legibly with a good writing utensil (i.e., pencil, pen, etc.).

- Although studying together is encouraged, your answers should reflect your understanding of the subject matter. Identically or near identically worded or phrased answers appearing on two or more exams will be graded at the most as textbook answers, regardless of their quality. This also applies to the examples you cite.

- A *shotgunned* answer (i.e., an answer does not directly address the question and dwells upon material irrelevant to the question) will be a detriment to your grade.

- Portions of your answer written beyond the one-page limit will not be graded. Therefore, organize your thoughts and be concise.

**Please Note.** As I have told students during past semesters, I can help you with the interpretation of a question, but I *cannot* tell you whether any pre-written answer is correct or incorrect. Doing so would provide you with an unfair advantage over others. Prepare your answers as you would for any other class exam. (The difference is that you know the questions in advance.)