PRACTICE Midterm
Computer Science 302

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Name: _____

Section : _____

Instructions

1. This midterm is comprehensive and includes material up to and including week 4.

2. You may use your notes for this quiz, but not the Baase text, laptops or PDA's. *Cellphones must be turned off.*

3. All answers are to be given on these pages.   You should have enough space given on the page to answer the question adequately. The problems given here may or may not be well timed or designed to be answered in the given timeframe, this is a practice exam. Consider the individual questions indicative of the relative importance of the topics and issues to the course.

4. You have from 10:10 until 12:00 to complete the exam. Plan your time accordingly.

question type	true/false	short answer	essay
# of questions	2	1	1
worth (%)	15 @ 2 pts =30	5 @ 4 pts = 20	2 @ 25 = 50
grade (%)			

total grade	%

TRUE/FALSE.   15 @ 2 pts each.

true   false   1.   Tort law interferes in the market to achieve a balance of technical and social progress.

true   false   2.   The "product" of science is truth.

true   false   3.   Petroski explains that society can have a very "safe" technology but only if we're willing to live without innovation.

true   false   4.   Sara Baase has a generally negative view of technology.

true   false   5.   An "opt out" privacy policy ensures maximum privacy with no action on the part of a consumer.

true   false   6.   A U.S. citizen has a right to privacy explicitly given by the U.S. Constitution.

true   false   7.   A California citizen has a right to privacy explicitly given by the California Constitution.

true   false   8.   The first version of TCAS gave so many "false" alarms that it was unusable.

true   false   9.   Petroski believes that the study of failure is central to engineering.

true   false   10.   Global warming is seen as a legitimate phenomena but computer models do not have the power to isolate the relative contribution of human activity.

true   false   11.   One of the recognized causes of the Therac-25 accidents was underconfidence in the underlying software.

true   false   12.   Software can be made absolutely "correct" so that failures do not occur.

true   false   13.   Some software models cannot be checked against reality to ensure their accuracy.

true   false   14.   Several experts in software expect to solve the safety-critical software problem within the next 50 years by Artificial Intelligence.

true   false   15.   Matthew Nagle is a quadraplegic who has partial mobility due to a chip implant in his brain.

SHORT ANSWER. 5 @ 4 pts. each. Be concise and clear. Use simple language and be direct and to-the-point. (** indicates a question that probably goes beyond what would be asked for a 4 point question but is given as a study hint :-)

16. ** Why does Baase advise software interface designers (in Chapter 4) that "[a] workload that is too low can be dangerous." Why is this advice given to *software* designers. It doesn't seem to be their job to think about such things.

17. ** (Baase 4.15) After making a programming change in a major bank's computer system, an employee forgot to enter certain commands. As a result, many customer deposits were not posted to customer accounts that day. How is this a *software [computer]* error?

18. ** (Baase 3.14) Detail the main tradeoff of the use of secure encryption like PGP over the internet. [I might further ask, "What side of the tradeoff has the strongest argument?"]

19. What is an important difference between public-key cryptography and secret-key cryptography?

20. List two private databases that probably have information about you. For each one, tell what service or benefit, if any, you got in exchange for providing information about yourself.

ESSAYS.   25 points each.   I suggest that you be clear and concise in your answers, but state any facts or assumptions you rely on for your conclusions. When writing your essays here, remember to state your assumptions and any important facts upon which your analysis will rely.. Consider all the stakeholders to the main issues. State the issues you'll have to face (the sub-questions you'll need to answer) in order to fully answer the given question. Consider alternative arguments on each issue and make a case for resolution of each issue. Conclude on the issues and move on to answer the question as a whole.

21.   A company planned to sell a software controlled laser device a person can wear around his or her neck that makes photographs taken of the person come out streaked and useless. It was marketed to celebrities who are hounded by photographers. Suppose the device works well against CCTV cameras and many people begin to use it routinely in public places. Law enforcement agencies will almost certainly try to ban it. Give arguments for and against such a ban. What side has the strongest arguments and why?

22.   There are several medical "expert systems" available today. (This is Artificial Intellegence software that is programmed to mimic the reasoning of expert physicians, make diagnoses based on given information and to detail the logical reasoning the software made to arrive at the diagnosis.) Suppose your physician appears to have made a poor diagnosis and someone is injured by it. You come to find she [he] did not consult such a system and it may have diagnosed the condition correctly. Does the physician have a responsibility to consult the Expert System? [Alternatively, if the physician relies on the Expert System diagnosis and it turns out to be incorrect, is the physician responsible or is the company that provides the Expert System responsible? ... or is the programmer responsible? ....]