

**BOWIE STATE UNIVERSITY
COMPREHENSIVE EXAMINATION FOR
MANAGEMENT INFORMATION SYSTEMS
18 March 2006**

Instructions:

The Comprehensive Examination for Management Information Systems is a three hour examination. You are required to answer **three questions**. You must respond to one question from Part A (the technical portion of the curriculum) and one question from part B (the management-related portion of the curriculum). Finally, respond to a third question from either part A or part B.

Grading the comprehensive exam requires approximately six weeks. No results will be released until all examinations, in all degree programs, have been graded. Answers to each question are graded "blind" by three faculty members with expertise in the subject matter.

Answers are graded as either "pass" or "fail." "Pass" indicates a minimum grade of B. In the event of a "fail" on the exam written comments from the graders explaining why the student's response was insufficient and what would be required for a passing grade will be supplied to the student. A student must pass two of three questions to receive a grade of "pass" for the comprehensive examination.

A set of URL's previously provided describe the general scenario, described in summary below. While the URL's provide additional background to the scenario, the summary below provides sufficient background for good responses to the comprehensive examination questions.

General Scenario:

For the March, 2006, MIS Comprehensive Exam, questions will be within the context of the Google Print project, a large-scale effort which includes scanning books from several libraries in order to "make offline information searchable online." In addition to technical issues, the project has stirred significant controversy with respect to issues of copyright violations, and financial protection of publishers and authors. There are also aspects of competition and cooperation by other companies, such as Amazon and publisher Random House.

The links provided gave approximately 20 pages of background information on the Google Print project and related issues. As you answer the questions on the comprehensive exam, please remember that the scoring of your response will be based on how well you can *apply* what you have learned in the core courses and additional reading of professional literature to specific questions, some of which invite reasonable speculation that outsiders cannot know as fact about what has taken and is taking place. The information provided in this introduction, and within the questions themselves, should be sufficient to allow you to demonstrate your knowledge and your ability to apply it to what is asked, whether or not you have read the background material.

Comprehensive Examination Questions:

Part A

(answer at least one question from Part A)

1. Storage of the content of the books provided by the participating publishers and libraries will involve enormous amounts of data.
 - a. Discuss why more than type of storage device will likely be required, being sure to demonstrate your knowledge of modern storage devices.
 - b. Discuss the trade-offs (advantages and disadvantages) of storing the data in a compressed format.
 - c. Without having any idea whether or not any is actually being used in the Google Print project, explain how a system could use specially-designed hardware to help protect the different states (public domain, protected by copyright, permission granted for retrieval by publisher/author) of the individual publications.

2. In both the “regular” Google searches and the Google Print project, the efficiency of the algorithms behind the search, and the effectiveness of the indexing done by the “crawlers” that process the text, are of critical importance.
 - a. Compare and contrast the use of parsing in compiling a computer program with the processing of the scanned or web site text by a “crawler.”
 - b. Although you are not expected to know the actual algorithms used in the Google searches, describe how searching can be made faster by suitable structuring of the data as it is stored.

3. In answering this question, you are to demonstrate your knowledge of the hardware and software that comprise networks, both internal to a company and external, as appropriate. You are also to demonstrate your awareness and understanding of current issues associated with networks and their uses.
 - a. Compare and contrast: Google’s ability to provide “targeted” advertising despite the user being “anonymous” and Amazon’s ability to provide targeted advertisements to its logged-in users.
 - b. Assuming a dial-up Internet connection over a 52K modem, and assuming that there are no copyright problems, and carefully documenting any additional assumptions you need to make, how long will it take to download a 100,000 word novel? *Warning – you must show work, or you receive no credit for this part of the question.*
 - c. Discuss two significant network security issues, and how Google’s network designers might have addressed those issues.

Part B

(answer at least one question from Part B)

4. The Google Print system will allow searching for books (or other publications) in the same way that a “regular” search engine allows for searching sites on the web. Various strategies have been put forward with respect to protection of copyright, and of making sure that authors and publishers receive fair compensation. These include (1) limiting the display of results to a small amount of the total text of the book and providing the service for free (revenue would come from advertisers, whose relevant ads would be displayed with the search results, as is the case with “regular” Google searches), (2) providing a link to Amazon in order to be able to purchase the book, (3) providing the capability to display an amount of the text of the book for which the person is proportionally charged, with some percentage of that charge going to Google and the rest to the publisher and author.
 - a. For each of the three variations described above, explain whether or not it is
 - i. E-business
 - ii. E-Commerce
 - iii. Customer Relationship Management (CRM)
 - iv. Enterprise Resource Planning (ERP)
 - b. For each of the three variations described above, discuss a significant ethical and/or privacy issue.

5. Google Print will obviously be a very large system.
 - a. Propose two methods for requirements acquisition within the analysis and design of the system – explain which you would choose were you in charge of designing Google Print, and why.
 - b. Discuss three significant items that you would expect to be of major importance in the maintenance phase of Google Print.

6. Google Print will be supported by databases, but there will presumably be other types of data storage structures as well.
 - a. Explain why the entire scanned text of the books would likely NOT be stored in a database.
 - b. Explain in convincing detail what data likely WOULD be stored into one or more databases as the books are scanned and processed.
 - c. Describe two indexes that would likely be needed for this/these database(s), and give an SQL-like (don’t worry about exact syntax, and if you need some function whose name you don’t remember just describe what it does) statement that would work with a database and one or more of these indexes to find (a) book(s) pertaining to cats in general, to a specific cat, or to one or more catastrophes. *(For purposes of this question, assume that there are no other words in the language that begin with “cat”.)*