

**BOWIE STATE UNIVERSITY  
COMPREHENSIVE EXAMINATION FOR  
MANAGEMENT INFORMATION SYSTEMS**

**24 June 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 June, 2006, MIS Comprehensive Exam, questions are within the context of the World Cup Soccer Tournament, officially known as the 2006 FIFA World Cup Germany™. The 64-match tournament is taking place at 12 different locations within Germany, having begun on 9 June 2006 and ending on 9 July 2006. Thirty-two teams (all from different countries) make up the field. There are 15 official sponsoring partners.

Along with "traditional" uses of technology in support of major sporting events, there is also use of Radio Frequency Identification (RFID) chips in the tickets, with the goals of preventing forgeries and black market sales and increasing security. The purchaser's name is printed on the ticket, and only that person can use the ticket. Tickets were applied for online, or via fax or hard copy, with limitations on how many can be requested by one household. There is a formal process through which, for reasons such as illness, hardship, death, or transfer within the family, tickets can be transferred or resold.

The URLs provided gave approximately 20 pages of background information. As you answer the questions on the comprehensive exam, please remember that the scoring of your responses 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. Where speculation is needed in your responses, you should state the assumptions on

which the speculation is based. 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.

## Comprehensive Examination Questions:

### Part A

(answer at least one question from Part A)

1. Recall that the tournament is taking place at 12 different locations within Germany. The overall system(s) include(s) many “traditional” functions such as payroll, human resources, accounting, inventory, etc.
  - a. Describe *two* functions that are more likely to be done by distributed computing systems than by a centralized system, being sure to explain why.
  - b. Describe *two* functions that are more likely to be done by a centralized computing system than by distributed systems, being sure to explain why.
  - c. Independently of whether there is a centralized information system or communication among several distributed ones, describe generally but in convincing detail how hardware and software work together to receive input from a device such as the RFID reader.
  
2. Whatever system(s) support(s) the World Cup Tournament are made up of many programs.
  - a. For each of *three* from among the four “traditional” programming language paradigms (procedural/imperative, object-oriented, functional, logic), discuss what would be its strengths and its weaknesses if used to implement systems supporting World Cup. Be sure to demonstrate your knowledge of the commonly compared characteristics of paradigms/languages within the context of the requirements of the World Cup Tournament’s information system needs.
  - b. The RFID tag on each ticket must be compared to a master list somewhere. Realizing that this is a data structures question (not a database question), discuss how appropriate structuring of the data can reduce the time required to do the matching.
  
3. In answering this question, you are to demonstrate your knowledge of the hardware and software that comprise networks, both internal to an enterprise 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: network requirements within one venue (location at which a match is taking place) *vs.* network requirements for communication among the entire system. Realizing that you don’t actually know what is there, speculate convincingly and specifically in the context of the World Cup.
  - b. Discuss *two* significant network security issues that could be important to the World Cup Soccer Tournament. Include discussion of possible solutions.

## Part B

(answer at least one question from Part B)

4. The World Cup Soccer Tournament is supported by 15 official sponsors.
  - a. Being sure to distinguish between e-commerce and e-business, describe in convincing detail (i) *two* opportunities for e-commerce and (ii) *two* opportunities for e-business within the weeks leading up to the Tournament.
  - b. Describe a plausible supply chain structure for distribution of official World Cup merchandise, and explain how within that structure one might attempt to prevent sales of unofficial merchandise. Be sure to include discussion of information system requirements for support of the supply chain.
  
5. The World Cup Soccer Tournament is a very visible collection of events, and there are significant demands on the system(s) to provide timely information in ways that would not have been imagined just a few years ago – for example, providing news and pictures to cell phones.
  - a. For *each phase* of the SDLC *except* the maintenance phase, discuss *one* significant issue that likely would have been important in development of the information system(s) supporting the World Cup events.
  - b. The “maintenance” phase is ongoing during this month of the games. What special burdens and/or opportunities (compared to more “traditional” information systems) does this place on the system designers?
  
6. These database questions relate to the sale of World Cup Soccer Tournament tickets online.
  - a. Describe the significant fields (attributes) of (a) table(s) that could support the storage of information regarding seat sales for *one* match, in *one* stadium. Do not spend time giving details of aggregate information. For example – say something inclusive such as “name, address, and phone” rather than giving such details as first name, last name, street address, city, country, postal code, area code, etc.
  - b. Explain in convincing detail how your structure would be expanded/modified to handle sales for *multiple* matches at the *same location*.
  - c. It is possible that two people could have tried to order the same seat (for the same match) online from two different geographic locations. Explain how a database management system can prevent selling the same seat, for the same match, to more than one person.