



**FACULTY OF MANAGEMENT  
NOVEMBER 2014 EXAMINATION**

**DEPARTMENT OF APPLIED INFORMATION SYSTEMS**

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**MODULE** : **INFORMATION SYSTEMS 3B**

**CODE** : **IFS03B1/ILS31B2/**

**DATE** : **7 NOVEMBER 2014**

**DURATION** : **2 HOURS**

**TIME** : **0830**

**TOTAL MARKS** : **100**

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**EXAMINER** : **TINO MUSEBA**

**EXTERNAL MODERATOR** : **Dr T.ZUVA**

**NUMBER OF PAGES** : **4 PAGES**

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**INSTRUCTIONS TO CANDIDATES:**

- Read the questions carefully
- Answer all questions
- Number your answers clearly
- Write neatly and legibly
- Structure your answers by using appropriate headings and sub-headings
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

### **QUESTION ONE**

- 1.1.** Discuss the availability principle of the CIA triangle and explain four reasons why an organization's information system can become unavailable **[5]**
- 1.2.** What is a Security Access Point? Discuss four security access points **[5]**
- 1.3.** What is a business rule? Discuss four security methods used to protect data **[5]**
- 1.4.** What is Database Security? Discuss four examples of Expert System used at the Strategic level of management **[5]**

### **QUESTION TWO**

- 2.1.** What is the purpose of an auditing process ? Discuss the reasons why auditing objectives are established and documented **[5]**
- 2.2.** Discuss five (5) functionalities of a Database Management System **[5]**
- 2.3.** Discuss five (5) functionalities of an Operating System **[5]**
- 2.4.** What is an Information System? Discuss four (4) components of an Information System **[5]**

### **QUESTION THREE**

- 3.1.** Discuss five (5) database auditing objectives **[5]**
- 3.2** What is a trigger? Discuss four (4) functions of a Trigger **[5]**
- 3.3.** Discuss five (5) side effects of Auditing **[5]**
- 3.4.** What is the use of Simple Auditing Model 2? Discuss the four (4) drawbacks of the DML audit model, Simple 2 **[5]**

## **QUESTION FOUR**

- 4.1.** What is Auditing? Discuss four (4) major components of the auditing environment **[5]**
- 4.2.** What is a security vulnerability? Discuss four (4) categories of database security vulnerabilities **[5]**
- 4.3.** Discuss the five logical components of Web application architecture **[5]**
- 4.4.** What is a Virtual Private Database? Discuss two main purposes for using Virtual Private Databases **[5]**

## **QUESTION FIVE**

**5.1.** You are a database administrator working for a national bank institution. One day, a lead developer sends you an e-mail requesting that you perform a data change. In the e-mail, he stresses the urgency and importance of this task. A minute later, you receive another e-mail but this is from the lead developer's manager to confirm the data change. This is the first time you have ever received this type of request. Usually, all requests go through the change management process.

- a).** List the security issues involved in this incident **[2]**
- b).** Describe the type of risks involved if you comply with the request and the types of risk involved if you do not **[4]**
- c).** Explain briefly how would react to this incident, outlining your reasoning and whether you would comply or not **[4]**

**5.2.** Your company received a request from its most important partner to comply with industry standards, which requires an audit trail of all financial data. Your manager summoned you to her office, explained this new requirement, and assigned you to design the architecture and a high-level auditing model. Compliance requires that all data changes be recorded in the history tables and that the auditing model employ a mechanism to audit any user on demand. Use a data model or a combination of the auditing models to produce the following:

- a).** The process flow diagram or flowchart of your auditing model **[2]**
- b).** The data model of your auditing model **[3]**
- c).** Identification of all components that will be involved in the auditing model **[2]**
- d).** A list of concerns you have about your auditing model **[3]**