



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE &
TECHNOLOGY UNIVERSITY EXAMINATIONS 2012/2013**

**4TH YEAR 1ST SEMESTER EXAMINATION IN BACHELOR OF
SCIENCE**

(SCHOOL BASED MAIN)

COURSE CODE: SCS 436

COURSE TITLE: INTERNAL CONTROLS AND SECURITY ISSUES

DATE: 1/9/2013

TIME: 11.30 - 1.30 PM

DURATION: 2 HOURS

INSTRUCTIONS

- 1. This paper contains five (5) questions.**
- 2. Answer question 1 (compulsory) and ANY other TWO questions.**
- 3. Write all answer in the booklet provided.**

QUESTION ONE [30 MARKS]

Consider the new Government Education Initiative that intends to promote computer education in all primary schools in Kenya. In partnership with respective systems vendors and financial partners, the plan is to supply all pupils with computer equipment (preferably laptops), meaning a complete boost to the e-learning project. This is a very productive exercise that shall expand computer literacy and eventually initialize mentorship programme for future technology leaders, right from such a tender age. In the pipeline, there is also adoption plan on bandwidth subsidies to improve e-learning support through provision of connectivity solutions to these equipments. However, the implementation of this exercise needs not to be done in isolation i.e. ignoring associated challenges such as security, legal and ethical issues that may arise.

You have been contacted as a technical expert to provide a summarized document that shall guide the implementation of this project. In your document, you are expected to include the following;

- (i) Provide reasons why there should be concerns towards the safety of these assets in questions.
- (ii) Include potential vulnerabilities on these computing assets active in both online and offline mode that can be exploited.
- (iii) Suggestion on appropriate proactive and reactive technical approaches that can be relied upon to secure these assets.
- (iv) Mention associated ethical and legal measures that can supplement technical approaches captured in question (iii) above.
- (v) Propose a phase-based audit plan for integrated information systems that these assets shall interact with.

QUESTION TWO [20 MARKS]

- (a) Define the following terms and concepts as applies to computer security. [4 Marks]
 - (i) Vulnerability
 - (ii) Threat
 - (iii) Risk
 - (iv) Attack
- (b) “Internal controls on computing assets can be preventive, detective, or reactive and have administrative, technical, and physical implementations”. Support this statement with appropriate examples. [8 Marks]
- (c) “Data can be classified as *top secret*, *highly confidential*, *proprietary* and *public*”. How true is this statement in a corporate organization that manages 200 outlets? [8 Marks]

QUESTION THREE [20 MARKS]

- (a) What is *computer crime*? [2 Marks]
- (b) Explain an example of computer crime applicable in each case below; [4 Marks]
- (i) Computer used to commit crime
 - (ii) Computer used as a target of a crime
- (c) Computer fraud can be interpreted to mean any illegal act for which knowledge of computer technology is essential for its penetration, investigation, or prosecution.
- (i) Name any three examples of computer fraud you know [3 Marks]
 - (ii) Give any three motivations that can promote computer fraud [3 Marks]
 - (iii) Suggest any three preventive measures that arrest computer fraud. [3 Marks]
- (d) Computer virus is one of malicious programs that malfunctions computer system.
- (i) Explain the difference between computer virus and computer worm.[2 Marks]
 - (ii) Three key points in virus attacks are: attacker, victim and purpose. Explain the significance of listed points. [3 Marks]

QUESTION FOUR [20 MARKS]

- (a) Define the following terms and concepts as applies to computer security [4 marks]
- (i) Malware
 - (ii) Computer Sabotage
 - (iii) Hacking
 - (iv) Phishing
- (b) Biometric access systems rely on unique physical characteristics of an individual in order to grant access.
- (i) Name any **two** such physical characteristics [2 Marks]
 - (ii) Give **two** advantages of using biometric access systems [2 marks]
 - (iii) Give **two** disadvantages of using biometric access systems [2 Marks]

(c) Identity theft, dot cons and spyware are some of the security concerns that target computing assets.

(i) Explain the underlined terms [6 Marks]

(ii) Provide tips for protecting against the underlined. [3 marks]

(d) Presenting admissible evidence in a court of law has been one major challenge towards effective prosecution of cyber crime cases. Identify any legal issue that has stood in the way of justice when it comes to handling cyber crime cases. [1 Mark]

QUESTION FIVE [20 MARKS]

(a) Briefly outline

(i) Types of security breaches [4 Marks]

(ii) Levels of security breaches [4 Marks]

(b) Describe the phases of Information Systems audit [4 Marks]

(c) Discuss any **two** auditing technologies for Information Systems. [4 Marks]

(d) “Trusts, assumptions, policies and mechanisms are important are underlying aspects of computer security”. Outline the significant roles of underlined aspects. [4 marks]

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