



FACULTY OF MANAGEMENT
DEPARTMENT OF APPLIED INFORMATION SYSTEMS

EXAMINATION NOVEMBER 2014

MODULE : COMPUTER SECURITY IV
CODE : ICS41-1
DATE : 5 NOVEMBER 2014
DURATION : 3 HOURS
TIME : 16H30 – 19H30
TOTAL MARKS : 100

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NUMBER OF PAGES 4 PAGES

INSTRUCTIONS TO CANDIDATES:

- Please answer all questions from **Section A** and **Section B**.
- This question paper remains the property of the university and must be handed over to the invigilator before leaving the examination venue.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- 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.

PICK n PAY HOLDINGS LIMITED CASE STUDY

Pick n Pay Holdings Limited and Pick n Pay Stores Limited are investment holding companies listed on the JSE since 1968. Pick n Pay Holdings Limited's sole purpose is the holding of the controlling shareholding in Pick n Pay Stores Limited. Pick n Pay Stores Limited, through its subsidiaries and associates, operates in the retail sector on the African continent.

Pick n Pay is the quintessential family store focused on the customer. Since 1967 when consumer champion Raymond Ackerman purchased the first few stores, the Ackerman family's vision has grown and expanded to now encompass stores in South Africa, Namibia, Botswana, Zambia, Mozambique, Mauritius, Swaziland and Lesotho.

Their offer to customers focuses on groceries, clothing and general merchandise, but also includes additional value-added services to cater for their customers' expectations and evolving needs. To ensure a convenient and accessible shopping experience the Group operates across multiple store formats, both franchised and owned.

For the past 5 years the Group's core focus has been to strengthen its strong South African retail businesses under the Pick n Pay and Boxer brands, while adopting a systematic approach to expanding into adjacent areas, including geographical growth through the African continent.

As a major retailer in Africa, the Group strives to address socio-economic challenges through the supply of high-quality, affordable food for all customers, while providing significant employment and economic opportunities across its value chain. The growth and success of Pick n Pay is attributable to 3 basic principles, which form the cornerstone of the business: Consumer sovereignty; Doing good is good business; and maximising business efficiency.

Pick a Pay also operates online via the following: Pick n Pay Mobi; Pick n Pay Mobile Money; Online Shopping; Pick n Pay Entertaining; Pick n Pay Investor Relations; Pick n Pay Travel and Pick n Pay Tickets.

SECTION A [CASE STUDY QUESTIONS]

QUESTION 1

Pick n Pay operates online and thus should ensure they are adequately protected against viruses and malicious code:

- (a) Give three reasons why Pick n Pay should worry about viruses and malicious code;
- (b) List five examples of malicious code and explain their characteristics;
- (c) Explain three ways in which malicious code attack.

[22 Marks]

QUESTION 2

Pick n Pay uses passwords to authenticate their users' access to their systems, but passwords are somewhat limited as protection options. List and describe five ways in which Pick n Pay's passwords may be attacked by persons or systems.

[10 Marks]**QUESTION 3**

Pick n Pay has various types of databases, one example is an employee database.

- (a) List three other types of databases that Pick n Pay may have;
- (b) List four advantages of having databases instead of simple file systems.

[7 Marks]**QUESTION 4**

You are called in to consult Pick n Pay on the installation of a security plan for a computing system. Explain the seven issues that this type of security plan must address.

[21 Marks]**SECTION B [GENERAL QUESTIONS]**

QUESTION 5

In cryptography, formal notations are used to describe informal statements. Explain each of the following formal notations:

- (a) $C = E(P)$
- (b) $P = D(C)$
- (c) $P = D(E(P))$

[10 Marks]**QUESTION 6**

"A threat is blocked by control of a vulnerability." Discuss this statement by explaining the terms "threat", "vulnerability", "attack" and "control".

[10 Marks]

QUESTION 7

Differentiate between copyright, patent and trade secret. Then use the following table to identify what option should be used for each of the following objects and explain why.

Object	What option should Pick n Pay use to protect this object?	Explain why
Hardware		
Firmware		
Object code software		
Source code software		
Documentation		
Web content		
Domain names and URLs		

[20 Marks]**TOTAL MARKS :****100**