



# MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

FACULTY OF ENGINEERING, APPLIED SCIENCE AND  
TECHNOLOGY

DEPARTMENT: COMPUTER SCIENCE AND INFORMATION SYSTEMS

INFORMATION SYSTEMS SECURITY AUDIT AND CONTROL

CODE: BSCIS 422/ INSY 415

SESSIONAL EXAMINATIONS  
DECEMBER-2023

DURATION: 3 HOURS

EXAMINER: RANGANAI. N

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## **INSTRUCTIONS**

1. Answer **any four** questions
2. Each question carries 25 marks
3. Total marks 100

## QUESTION ONE

- a) Define and explain the concept of information security audit. Discuss the key objectives and benefits of conducting information security audits in organizations. [10marks]
- b) Discuss the concepts of incident response and disaster recovery in information systems security. Describe the key components of an incident response plan and the steps involved in developing a disaster recovery plan. [10marks]
- c) Briefly explain **two** ways in which password-based security can be enhanced through authentication [2marks]
- d) (e) When do we consider information to be confidential [3marks]

## QUESTION TWO

a) Describe the following attacks faced when designing a security framework for wireless mobile networks:

- i. replay attack
- ii. blue jacking attack
- iii. disassociation attack [12 marks]

(iv) What are Biometric systems [2 marks]

(v) Describe any **five** problems that are associated with biometrics [5 marks]

b) Describe any **three** cloud service models, SaaS, PaaS and IaaS. [6 marks]

## QUESTION THREE

- a) Outline the steps involved in conducting a comprehensive risk assessment for information systems. Discuss the importance of risk assessment in identifying and mitigating security vulnerabilities. [15marks]
- b) Explain the concept of access controls in information systems security.  
Discuss the different types of access controls, such as physical, logical, and

administrative, and provide examples of each.

[10marks]

#### **QUESTION FOUR**

(a) Given that Bob uses the following prime numbers 5 and 13. Encrypt and Decrypt the message using RSA algorithm. [9 marks]

(b) RSA algorithm is known to be strong in terms of security but has got a weakness of being slow in encryption and decryption. DES strength is that of speed in decryption/encryption process but has shortcomings when it comes to security. Write a hybrid algorithm such that security is offered by RSA and speed in encryption/decryption is offered by DES [12 marks]

(c) Discuss the role of encryption in ensuring the confidentiality of data in information systems. Explain how encryption works and describe different encryption algorithms commonly used in practice. [4marks]

#### **QUESTION FIVE**

a) Outline the difference between honey-pot and honey-net in information system security audit and control. [5 marks]

b) Briefly explain the three (3) principles of sound encryption systems [6 marks]

c) Using diagrams differentiate between symmetric and asymmetric algorithms [4 marks]

d) Outline any two (2) problems with symmetric cryptosystems [2 marks]

e) Discuss the legal and ethical considerations in information systems security. Explain the relevant laws and regulations that organizations need to comply with to ensure the privacy and security of user data.

[8marks]

..... **END OF EXAMINATION**.....