



Kasarani Campus
Off Thika Road
Tel. 2042692 / 3
P. O. Box 49274, 00100
NAIROBI
Westlands Campus
Pamstech House
Woodvale Grove
Tel. 4442212
Fax: 4444175

KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
FOURTH YEAR, SECOND SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)

Date: 1st August, 2022
Time: 8.30am –10.30am

KCS 410 - SECURITY AND CRYPTOGRAPHY

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Cyber security focuses on safeguarding information assets from damage or harm; specify which assets should be protected during information security.
(5 marks)
- b) In general, cryptographic systems are classed along three independent parameters. Explain the three independent dimensions that are used to classify encryption algorithms.
(5 marks)
- c) Discuss what are the key technological components used for security implementation.
(5 marks)
- d) Describe the various reasons why DNS monitoring is essential in computer systems and networks.
(5 marks)
- e) Explain the operation of asymmetric and Symmetric encryption algorithms in data Security.
(10 marks)

QUESTION TWO (20 MARKS)

- a) What is the difference between digital signature and conventional signature.
(4 marks)
- b) Discuss the three information security services that preserve the properties for data and services.
(6 marks)
- c) Explain five reasons why we are advised to study information security in different institutions?
(10 marks)

QUESTION THREE (20 MARKS)

- a) Identify and explain the three categories of information security controls. (6 marks)
- b) Explain at least three aspects of information security. (6 marks)
- c) Differentiate between the following security informational terminologies;
 - i) Block ciphers and Stream cipher
 - ii) Plaintext and Cipher text
 - iii) Encipher and Decipher (6 marks)
- d) Highlight any six sources of computer virus and explain its defenses. (12 marks)

QUESTION FOUR (20 MARKS)

- a) What is the difference between a digital signature and a traditional signature? (4 marks)
- b) Discuss the three information security services that preserve data and service properties. (6 marks)
- c) Explain five reasons why we are advised to study information security in different institutions? (10 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss at least five aspects of electronic corporate information system security management across computer networks. (10 marks)
- b) Authenticity is very important when comes to security service of information in any network, define what is authentication and explain its four types. (10 marks)