



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2024/2025

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE MASTER OF
SCIENCE IN INFORMATION TECHNOLOGY

CIT 7156: CYBER AND NETWORK SECURITY

DATE: JANUARY 2025

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) Goli is a computer security consultant; she enjoys the challenge of finding and fixing security vulnerabilities. Independently wealthy, she does not need to work, and so she has ample spare time in which to test the security of systems. In her spare time, Goli does three things: First, she aggressively attacks commercial products for vulnerabilities. She is quite proud of the tools and approach she has developed, and she is quite successful at finding flaws. Secondly, she probes accessible systems on the Internet, and when she finds vulnerable sites, she contacts the owners to offer her services repairing the problems. Finally, she is a strong believer in high-quality pastry, and she plants small programs to slow performance in the web sites of pastry shops that do not use enough butter in their pastries. Let us examine these three actions in order.
- i. Describe how Goli's actions might violate cybersecurity laws or regulations such as the Computer Misuse and cybercrimes Act (CMCA) (5 Marks)

- ii. Discuss how Goli's planting of small programs to slow down websites of pastry shops that do not meet her personal standards could be considered both unethical and illegal (5 Marks)

- b) Discuss Cyber Crime, Cyber terrorism, and Cyber Espionage (6 Marks)
- c) Explain the types of attacks in cybersecurity (4 Marks)

QUESTION TWO (20 MARKS)

- a) Describe THREE (3) roles of International Laws in cybersecurity (6 Marks)
- b) You receive the following email from the Help Desk:

Dear XYZ Email User, beginning next week, we will be deleting all inactive email accounts in order to create space for more users. You are required to send the following information in order to continue using your email account. If we do not receive this information from you by the end of the week, your email account will be closed. *Name (first and last): *Email Login: *Password: *Alternate email: Please contact the Webmail Team with any questions. Thank you for your immediate attention.

- i. Describe what type of cybercrime is it (2 Marks)
- ii. Discuss the actions that you should take upon receiving such an email message (4 Marks)
- c) Explain the different types of identity thefts (6 Marks)
- d) Discuss the concept of foot printing and penetration testing in relation to cyber and network security (4 Marks)
- e) List the security challenges posed by Mobile devices (2 Marks)

QUESTION THREE (20 MARKS)

- a) Discuss any THREE (3) attacks on wireless networks (6 Marks)
- b) Explain the provisions relating to Infringement of Intellectual Property rights (4 Marks)
- c) Describe the guidelines for cybercrime investigation of offences (5 Marks)
- d) Explain any FIVE (5) tools and techniques used to commit cybercrime (5 Marks)

QUESTION FOUR (20 MARKS)

- a) Referencing the Kenyan computer misuse and cybercrimes Act 2018:
- i. Discuss any FIVE (5) cybercrime offences that are highlighted in the act (5 Marks)
 - ii. Describe the liability of service providers under the Act (4 Marks)
 - iii. Outline any FIVE (5) rules of evidence that can be used in cybercrime adjudication (5 Marks)
- b) Explain the following terms related to cybercrimes (6 Marks)
- i. Cyber defamation
 - ii. Data Diddling
 - iii. Software Piracy
 - iv. Identity Theft
 - v. E-mail Bombing/ Mail Bombs
 - vi. Cyber Squatting

QUESTION FIVE (20 MARKS)

- a) Cybercrime investigation is conducted following step by step procedures and involving various investigation tools and techniques. Describe the barriers in cybercrime investigation (4 Marks)
- b) On the internet, people are frequently more vocal and often more hostile than they are in other venues. Discuss FOUR (4) factors that law enforcement will consider if the cyber threat is serious or not (4 Marks)
- c) In the protection of cyber-attacks, the companies should ensure THREE (3) of the security measures are put in place. Explain these three main measures (6 Marks)
- d) Developing policies and procedures is an important phase in creating a cyber and network security unit in an organization. Describe THREE (3) policies and procedures in an organization like Meru University that ensure cyber and network security (6 Marks)