



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

SCO 406: COMPUTER SYSTEM SECURITY

DATE: 22/10/2020

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Computer security as a specialization is filled with challenges making it difficult to achieve 100% security. Discuss TWO challenges. (4 marks)
- b) Explain THREE attack surfaces in computer systems. (6 marks)
- c) Explain two challenges with symmetric encryption. (4 marks)
- d) Explain FOUR ways of authentication used in computers. (8 marks)
- e) A new microfinance institution is in the process of implementing a new finance system. As an expert in matters system security, explain to the management the reason they should consider security as key component of the new system. (8 marks)

QUESTION TWO (20 MARKS)

- a) SQLInjection database attack can be accomplished through various avenues. Discuss FIVE avenues of SQLInjection attack. (10 marks)
- b) Discuss the FOUR phases a virus undergoes before it is detected in a computer. (8 marks)
- c) Define the term ransomware. (2 marks)

QUESTION THREE (20 MARKS)

- a) Having been certified as a Security expert your system gets a DDoS attack. Discuss FOUR ways to defend the system from such an attack in future. (8 marks)
- b) As a security expert you are required to perform system penetration to test the security of the system. Explain SIX steps you would take to achieve this task. (12 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the FOUR types of firewalls used in computer security. (8 marks)
- b) Explain THREE aspect of computer security strategy. (6 marks)
- c) Discuss THREE security issues with user authentication. (6 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss FIVE Cloud Security as a Service categories used to secure cloud. (10 marks)
- b) A new computer security approach is needed in your organization and the top management counts on you in matters system security. Explain FIVE security design principles required in computer security. (10 marks)