



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

**THIRD YEAR FIRST SEMESTER EXAMINATION FOR
BACHELOR SCIENCE INFORMATION TECHNOLOGY**

SIT 302: INFORMATION SYSTEMS SECURITY

DATE: 18/8/2021

TIME: 8:30 – 10:30 AM

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Discuss TWO challenges affecting implementation of systems security in organizations. (4 marks)
- b) Explain THREE attack surfaces in computer systems. (6 marks)
- c) Explain two challenges with symmetric encryption. (4 marks)
- d) Use a scenario to explain FOUR ways of user authentication. (8 marks)
- e) A new microfinance institution is in the process of implementing a new finance system. As an expert in matters system security, discuss with the management the reason they should consider security as a key component of the new system. (8 marks)

QUESTION TWO (20 MARKS)

- a) Discuss FOUR avenues of SQLinjection attack. (8 marks)
- b) Discuss the FOUR phases a virus undergoes before it is detected in a computer. (8 marks)
- c) Define the term ransomware and suggest TWO ways of mitigating (4 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 steps you would take to achieve this task. (8 marks)
- c) Explain TWO components of an information system. (4 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 FOUR Cloud Security as a Service categories used to secure cloud. (8 marks)
- b) A new computer security approach is needed in your organization and the top management counts on you in matters system security. Explain FOUR security design principles required in computer security. (8 marks)
- c) Strong encryption is dependent on two factors. Discuss these factors giving examples. (4 marks)