



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY**

**(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS  
2021 / 2022 ACADEMIC YEAR  
SPECIAL / SUPPLEMENTARY  
FOURTH YEAR EXAMINATIONS**

FOR THE DEGREE

IN

COMPUTER SCIENCE & INFORMATION TECHNOLOGY

**COURSE CODE:** BIT 425E

**COURSE TITLE:** WEB APPLICATION SECURITY

**DATE:** MONDAY 01-08-2022

**TIME:** 2:00P.m-4:00P.m

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**INSTRUCTIONS TO CANDIDATES**

- Answer Questions ONE and ANY OTHER TWO.
- TIME: 2 Hours**

## **Question 1 COMPULSORY (30 MARKS)**

- a) Briefly define the following terms in relation to web application security:
- DOS
  - DDOS
  - SSL
  - TLS
  - DMZ
  - Firewall
- (12 marks)**
- b) Insecure software and has a huge impact on our financial, healthcare, defense, energy, and other critical infrastructure. Briefly highlight any such five impacts. **(10 marks)**
- c) As a web application designer, name and explain any 4 web security protocols you know of **(8 marks)**

## **Question 2 (20 MARKS)**

- a) Name and briefly explain any **three** types of software application attacks and **three** types of web application attacks that you know of. **(12 marks)**
- b) Explain what a web application firewall (WAF) is how it is expected to perform. **(8 marks)**

## **Question 3 (20 MARKS)**

- a) Explain the TLS handshake process. **(6 marks)**
- b) Explain what online privacy means, how it two ways on can be maintained. **(5 marks)**
- c) Describe the term defense in depth and how it is useful to application security. **(5 marks)**
- d) Describe any two countermeasures you will design to prevent your web application against DoS and DDos. **(4 marks)**

## **Question 4 (20 MARKS)**

- a) Your company server has been hit by ransomware. Explain steps you can take to prevent future occurrences of the same **(5 marks)**
- b) Explain any three Best Practices for Systems Hardening. **(9 marks)**
- c) There are three main components to what the TLS protocol accomplishes. Name and explain these three components **(6 marks)**

**Question 5 (20 MARKS)**

- a) The Open Web Application Security Project (OWASP) has identified Top 10 Web Application Security Risks. Name and explain any five of these Application Security Risks and their countermeasures. **(20 marks)**