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**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS
YEAR FOUR SEMESTER I EXAMINATIONS**

**FOR THE DEGREE OF
BACHELOR OF SCIENCE
IN
COMPUTER SCIENCE**

COURSE CODE : CSC 463E

COURSE TITLE : WEB APPLICATION SECURITY

DATE: 25/04/2023

TIME: 9.00AM-11.00PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a. Define the term Web application security [2 Marks]
- b. As an upcoming information security expert, it is imperative that you understand the many common web app security vulnerabilities. Discuss any three. [6 marks]
- c. A Web Application Fire wall is a very important tool in web development. Explain two functions of a Web Application Firewall (WAF) [2 Marks]
- d. The roles and job titles in the security sector often involve somewhat overlapping responsibilities, and can be broad or specialized depending on the size and special needs of the organization. Define the specific roles of the following cyber security personnel: [6 marks]
 - i. Intrusion Detection Specialist
 - ii. Penetration Tester
 - iii. Vulnerability Assessor
- e. Nicole is a software developer. However she has been having a lot of problems in the course of her work. There are some Tips developers like her should remember to protect and secure information. Mention any five. [5 Marks]
- f. State and Explain four legal issues used to protect your App [4 marks]
- g. Explain five computer security threats [5 Marks]

QUESTION TWO (20 MARKS)

- a. What is a security risk assessment? [2 Marks]
- b. Kibabii University is coming up with some Web Applications. But there are so many risks involved in the business. Explain to the Vice Chancellor the four steps of coming up with a successful security risk assessment model before they embark on it. [4 Marks]
- c. It is important to understand that a security risk assessment isn't a one-time security project. Rather, it's a continuous activity that should be conducted at least once every other year. What problems does a security risk assessment solve? [4 marks]
- d. Web development is expediting at an aggressive rate. As a web developer what challenges do you expect to come across during the development process? Explain them. [10 Marks]

QUESTION THREE (20 MARKS)

- a. There are some ways of Effectively Managing Security Risks. John would like to know how to effectively do so. Explain to him any four ways of doing the above. [4 Marks]
- b. Discuss the Importance of an Information Security Policy [2 Marks]
- c. Chelsy's Company would like to develop an information security policy. The steps listed below are followed when doing so. Define each one of the steps listed below. [14 Marks]
 - i. Purpose
 - ii. Audience

- iii. Information security objectives
- iv. Authority and access control policy
- v. Data classification
- vi. Data support and operations
- vii. Security awareness and behavior

QUESTION FOUR (20 MARKS)

- a. Policies direct how issues should be addressed and technologies used. Security Policies are least expensive controls to execute but most difficult to implement. There are some Best Practices for Drafting an Information Security Policy. State any five [10 Marks]
- b. Physical security needs to be established in every Web Application system. Explain three techniques for establishing physical security [6 Marks]
- c. Data encryption is a common and effective security method—a sound choice for protecting an organization's information. What is Data Encryption in Network Security? [2 Marks]
- d. Considering the elevated risk of cybercrime today, every person and group that uses the internet should be familiar with and incorporate basic encryption techniques, at the very least. Explain how Encryption works [2 Marks]

QUESTION FIVE (20 MARKS)

- a. In Information Security, Digital Signatures are very important for security. How would you define them? [2 Marks]
- b. Based on the technology it uses, there are 3 types of digital signatures that you need to recognize. Name and explain each one of them [6 Marks]
- c. Digital signatures are used to meet three important goals of information security. Discuss the goals and how they make the information security better. [9 Marks]
- d. Cryptographic digital signatures make use of various keys and other functions. A client needs you as a software developer to create for him one and explain to him how it works. Explain how they work [3 Marks]