JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN BUSINESS INFORMATION SYSTEMS

4TH YEAR 2ND SEMESTER 2019/20 ACADEMIC YEAR

MAIN CAMPUS

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COURSE CODE: IIS 3421

COURSE TITLE: Information Systems Security

EXAM VENUE: **STREAM: BSc BIS**

DATE: April 2020   **EXAM SESSION:**

TIME: 2.00 HOURS

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INSTRUCTIONS:

1. **Answer Question 1 (Compulsory) and ANY other two questions**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

Question 1

a) Define data perturbation (2 marks)

b) Differentiate between cyber extortion and cyber terrorism (2 marks)

c) Identify 4 characteristics of a good hash function (4 marks)

d) List down 2 desirable properties of digital cash (2 marks)

e) Explain the meaning of SSL certificate (2 marks)

f) Using appropriate examples differentiate between general controls and application controls (2 marks)

g) Database auditing can be authorization auditing, access auditing or replication auditing. Explain (6 marks)

h) Briefly explain each of the three members of the information security triad (6 marks)

i) Briefly describe transposition cryptography technique (4 marks)

QUESTION 2

a) Explain the following terms :

i) Confidentiality (2 marks)

ii) Accountability (2 marks)

iii) Identification (2 marks)

b)Define a statistical query (2 marks)

b) You have been hired as an Information Systems Security Officer of ABC company. Your first task is to come up with a security policy. Discuss 4 items that you will include in this security policy (8 marks)

c) Explain why an auditing system should be included in any given information system (4 marks)

Question 3

a) Define

i) Asset (2 marks)

ii) Nonrepudiation (2 marks)

b) Explain the purpose of pretty good privacy encryption protocol (2 marks)

c)Define hashing (2 marks)

d) Discuss the security of AES (6 marks)

e) SQL injection counter measures can be: defensive coding, detection and runtime prevention. Explain (6 marks)

Question 4

a)Define SSL (2 marks)

b)Define SQL injection attacks (2 marks)

c) What is public key infrastructure (2 marks)

d)Discuss 3 different levels of database encryption (6 marks)

e) An ideal password authentication scheme has to withstand a number of attacks. Describe 4 of these attacks (8 marks)

Question 5

a)Explain the following concepts

i)one-way function (2 marks)

ii)trapdoor one-way function (2 marks)

b)In order to ensure security of IS 5 items need to be determined. Explain any 2 (4 marks)

c)You have been hired as an IS officer and tasked to secure sensitive data. Discuss 3 ways of doing this (6 marks)

d)Discuss 3 threats to information resources (6 marks)