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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATIONS YEAR THREE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE COMPUTER SCIENCE

COURSE CODE : CSC 314

COURSE TITLE : SECURITY IN COMPUTING

DATE: 04/10/2018 TIME: 08:00 A.M – 10:00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [30 MARKS]

a. i. Define the following terms:

Computer security [2 marks]

Security System [2 marks]

ii. Differentiate between:

Structured and unstructured threats [2 marks]

Internal and External threats [2 marks]

A hacker and a phreaker [2 marks]

Access control and authorization [2 marks]

b. Outline THREE primary vulnerabilities weaknesses that computer systems are likely to be plagued with. [6 marks]

c. Detail five access control design principles that can be considered so that many attacks as possible are prevented in a system. [5 marks]

d. i. Give your understanding of cryptography. [2 marks]

ii. Why is a key important in cryptography. [2 marks]

iii. Describe three uses of Public key cryptography. [3 marks]

SECTION B

QUESTION TWO: [20 MARKS]

a. i. Using a diagram, illustrate how Asymmetric key encryption works [6 marks]

ii. Why are digital signatures important in electronic communication? [4 marks]

iii. Give three examples of secret key cryptographic algorithms and briefly describe how they work. [6 marks]

b. Describe what hash function is and give its importance in computer security. [4 marks]

QUESTION THREE:

[20 MARKS]

- a. Explain SIX components of computer security [12 marks]
- b. With examples, illustrate different real life computing situations where access control is applied and/or implemented. [8 marks]

QUESTION FOUR

[20 MARKS]

- a. Policy defines what is allowed and how the system and security mechanisms should act. Having been a computer security student, discuss three security models showing how they work in a computing environment. [12 marks]
- b. As an ICT manager, demonstrate to students on attachment in your organization what a good security policy should entail. [8 marks]

QUESTION FIVE

[20 MARKS]

- a. As a system analyst, explain to your CEO different vulnerabilities that may exist in your organization and how you plan to ensure they are not exploited. [10 marks]
- b. Explain different types of attacks that unauthorized users will use to try and access your systems or perform against your security controls. [10 marks]