UNIVERSITY OF GHANA

B. A./B.SC INFORMATION TECHNOLOGY, FIRST SEMESTER EXAMINATIONS 201 7/2018

CSIT 309: DATA NETWORK SECURITY I (3 CREDITS)

INSTRUCTION:

Answer Question A1 and Any Other TWO (2) Questions in the Answer Booklet.

TIME ALLOWED:

TWO AND A HALF (2½) HOURS

A1.

a) What is Threat Modelling? **[2 Marks]**

b) Outline the seven (7) threat modelling processes developed by Microsoft and explain any ONE of them. **[6 Marks]**

c) Explain the three (3) processes of integrating Security into Software Development Life cycle (SDLC) **[6 Marks]**

d) Explain the three major components of a web application? **[6 Marks]**

e) Explain the concept of SQL Injection and state two examples of commands that

could be used by an attacker **[3 Marks]**

f) Discuss four (4) possible ways SQL Injection can be prevented? **[4 Marks]**

g) Differentiate between a website and a web application **[2 Marks]**

A1.

a) Explain the acronym STRIDE as used in assessing threat modelling techniques

[5 Marks]

b) Describe the two main types of vulnerability in relation to privilege escalation stating an example each? **[6 Marks]**

c) Differentiate between cross-site scripting and cross-site request forgery? **[4 Marks]**

a) Discuss how one can prevent cross-site request forgery **[2 Marks]**

b) What are the implications of Injection flaws? **[3 Marks]**

A1.

a) Describe the concept of missing function level access control and its implications?

[3 Marks]

b) Explain four (4) ways of fixing a weak authentication session **[4 Marks]**

c) Discuss sensitive data exposure vulnerability and its implication in web applications.

[5 Marks]

d) Outline five ways of preventing an attacker from exploiting a web application

through sensitive data exposure. **[5 Marks]**

e) Link injection facilitates CSRF. What is Link injection and how can it be avoided.

[3 Marks]

A1.

a) With the aid of a diagram, explain the cross site scripting exploit process.

[5 Marks]

b) Discuss five ways an administrator would prevent session hijacking in developing a web application. **[5 Marks]**

c) Outline five (5) implications of vulnerabilities due to insecure direct object reference.

[5 Marks]

d) Explain five ways one can prevent insecure direct object reference vulnerability?

[5 Marks]