



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS
UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN IT
AND SECURITY AUDIT
1ST YEAR 1ST SEMESTER 2014/2015 ACADEMIC YEAR
MAIN CAMPUS

COURSE CODE : IIT 5114

COURSE TITLE : SECURING AN E-COMMERCE INFRASTRUCTURE

EXAM VENUE : STREAM :

DATE : Dec 2016 EXAM SESSION :

TIME: 2.00 HOURS

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 ONE 30 MARKS

- a) Mention eight (8) e-commerce security tools that exist in an e-commerce environment. **(8 Marks)**
- b) Describe at least SIX key dimensions of e-commerce security? **(12 Marks)**
- c) Discuss why new and improved security measures are not enough to stop online crime. What is the missing ingredient? **(4 Marks)**
- d) Describe at least SIX (6) forms of security threats in an e-commerce environment. **(6 Marks)**

QUESTION TWO 20 MARKS

- a) Consider the task of designing a Web server that will target specifically E-commerce, with the objective of accommodating a number of merchant sites, each consisting of a catalog, shopping cart, payment system interfacing with a credit card company, customer profiles repository based on previous transactions, and a recommender system. What specific architectural suggestions would you make to ensure.
- (i) Efficiency **(3 Marks)**
 - (ii) Security **(3 Marks)**
 - (iii) Reliability? **(3 Marks)**
- b) Describe three types of encryptions that can be used to enhance security aspects of an e-commerce infrastructure. **(6 Marks)**
- c) Why is security important in e-commerce? **(2 Marks)**
- d) What are the security issues to be taken into account while designing a security system for e-commerce. **(3 Marks)**

QUESTION THREE 20 MARKS

- a) A digital signature can provide three services: message integrity, message authentication, and nonrepudiation. Note that a digital signature scheme does not provide confidential communication. If confidentiality is required, the message and the signature must be encrypted using either a secret-key or public-key cryptosystem. Describe how a digital signature can provide the three services;
- i. Message authentication **(5 Marks)**
 - ii. Message Integrity **(5 Marks)**
 - iii. Message Nonrepudiation **(5 Marks)**
- b) A firewall is a device that filters all traffic between a protected or "inside" network and a less trustworthy or "outside" network. List Five types of firewall. **(5 Marks)**

QUESTION FOUR 20 MARKS

- a) E-commerce security is the protection of e-commerce assets from unauthorized access, use, alteration, or destruction. While security features do not guarantee a secure system, they are necessary to build a secure system. Discuss FOUR (4) categories of Security features in an e-commerce environment. **(8 Marks)**
- b) Explain the significance of cryptography **(4 Marks)**
- c) What do you mean by the term cypher text. **(2 Marks)**
- d) Discuss the security and privacy issues related to electronic cash. **(6 Marks)**

QUESTION FIVE 20 MARKS

- a) Explain the network security protocol for e-commerce. **(6 Marks)**
- b) Explain the significance of customer privacy and transaction security in e-commerce **(4 Marks)**
- c) Explain the role of digital signature in e-commerce **(4 Marks)**
- d) Discuss the ways of establishing trust and confidence among the customers in e-commerce. **(6 Marks)**