



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION BACHELOR OF BUSINESS ADMINISTRATION
WITH IT
3RD YEAR 1ST SEMESTER 2017/2018 ACADEMIC YEAR
KISII CAMPUS**

COURSE CODE: SCS 306

COURSE TITLE: INTERNET COMPUTING

EXAM VENUE: KISII

DATE:

EXAM SESSION: TIME: 2 HOURS

Instructions:

- 1. Answer Question ONE (COMPULSORY) and ANY other 2 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

- a. Describe the OSI seven layer model. Name each of the layers of the model and show the ordering of the layers and describe the purpose of each layer of the model. (8 marks)
- b. Use a diagram to contrast the OSI model with the TCP/IP reference model and show how the corresponding layers of the two models map into each other (8 marks)
- c. Give a definition of a service and a protocol and illustrate the fundamental difference between a protocol and a service (4 marks)
- d. Discuss the use of formal analysis techniques for protocols analysis. Comment on why such protocols are used in analyzing protocols and give an example of the types of problems that such analysis can reveal.
(6 marks)
- e. Describe the role of a firewall and use a simple diagram to illustrate where a firewall is used in a computer network (4 marks)

QUESTION TWO

- a. Explain, using an example how bit stuffing is used to preserve frame boundaries when transmitting binary data at the data link layer of the protocol stack. (8 marks)
- b. Use an example to show how a Symmetric encryption algorithm works (8 marks)
- c. Explain how do distributed entities agree on key distribution in symmetric key exchange?
(4 marks)

QUESTION THREE

- a. Explain the following information security concepts and how each can be enforced
 - i. Integrity (2 marks)
 - ii. Confidentiality (2 marks)
 - iii. Availability (2 marks)
- b. Use a diagram of a search engine architecture to show the three components that make up the search engine and explain the function of each component (8 marks)
- c. Use an example to show the format of an IP datagram (6 marks)

QUESTION FOUR (20 Marks)

- a) The URL comprises of three parts, name them and state their roles. (6 Marks)
- b) Give your understanding of a web based application (4 Marks)
- c) Enumerate four examples of Web Base Applications (4 Marks)
- d) Give four justifiable reasons why we need Web Based Applications (6 Marks)

QUESTION FIVE

- a. Using a diagram, describe the components and their functions of a Unified Threat Management (UTM) system (10 marks)
- b. Use a diagram to show the working of a Web Server (6 marks)
- c. Discuss the Purpose of Proxy Servers in a computer network (4 marks)