



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**DEPARTMENT OF INFORMATION SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE DEGREE BACHELOR OF INFORMATION**

**AND COMMUNICATION TECHNOLOGY**

**YEAR THREE: SEMESTER TWO**

**3<sup>rd</sup> YEAR 2<sup>nd</sup> SEMESTER 2020 ACADEMIC YEAR**

**MAIN CAMPUS**

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**COURSE CODE: ITB 1302**

**COURSE TITLE: NETWORK SYSTEMS INTERGRATION AND MAINTENACE**

**DATE:1/12/20**

**TIME:3 HRS            EXAM SESSION-9-12 NOON**

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### **INSTRUCTIONS**

**1. Answer Question 1 (Compulsory) and ANY other TWO questions**

- 1. Candidates are advised to write on the text editor provided, or to write on a foolscap, scan and upload alongside the question.**
- 2. Candidates must ensure that they submit their work by clicking 'FINISH AND SUBMIT ATTEMPT' button at the end.**

### Question One

- a) Differentiate between Client/Server Network and Peer-to-Peer Network (6 marks)
- b) What is meant by Networks systems integration? (2 marks)
- c) With illustrations, describe at least three common topologies (10 marks)
- d) There are two portions of an IPV4 addressing schemes describe (2 marks).
- e) In terms of Local Area Networks, explain the purpose of the following LAN basics
  - i. Switch (2 marks)
  - ii. Hub (2 marks)
  - iii. Router (2 marks)
  - iv. Node (2 marks)
  - v. Default Gateway (2 marks)

### Question Three

Wireless Application Protocol specifications address some wireless issues by using the existing standards where possible, with or without modification, and also by developing new standards that are optimized for the wireless environment where needed.

- (a) What is Wireless Application Protocol (WAP)? (02 marks)
- (b) Explain the key elements of the WAP specification. (08 marks)
- (c) In your opinion, why is WAP needed in wireless communication? (10 marks)

### Question Three

- a) What is meant by the terms: (6 marks)
  - i) Packet Filtering
  - ii) Circuit-level gateway
  - iii) Application-level gateway
- b) Attacks are detected and prevented in circuit-level architectures where a security device discards suspicious requests. If you receive 2,000 SYN (connection) requests per minute from a single host, describe as systems Administrator what you should become suspicious of how can Security devices be configured to do
- c) These programs can be used to find and close security holes on your network by simulating attacker reconnaissance and exploit behavior. Describe each of them as Network systems administrator
  - i. Email reconnaissance (2 marks)
  - ii. SYN flooding or DoS (2 marks)
  - iii. Application-specific DoS attacks (2 marks)
  - iv. IP spoofing (2 marks)
  - v. Packet sniffing (2 marks)

- vi. Trojan horses, back doors, spyware **(2 marks)**
- vii. DNS transfer **(2 marks)**

#### **Question Four**

- a) What is a CASE MODEL? **(3 marks)**
- b) Illustrate the use of CASE MODEL in modern Networks integrations **(5 marks)**
- c) The OSI Model is a Layered framework for the design of network systems that allow communication between all types of computer systems. It consists of seven separate but related layers, each of which defines a part of the process of moving information across a network. Name and explain the structure of the seven layers mentioned above. **(8 marks)**
- d) Given that two computers are connected to each other with an Ethernet cable. How does the data move from computer A to computer B **(4 marks)**

#### **Question Five**

- a) What is “system administration”? And describe the goals of system administration? **(4 marks).**
- b) Describe some of the core possible duties of a systems administrator **(6 marks)**
- c) There are various types of system administrators. Describe at least three types and explaining their roles. **(4 marks)**
- d) On a typical multiuser computing system (such as a shared Unix system at a university or an industry), there are various bad people who can break into the systems or interrupt the normal operations of the system. Describe some of these people and as a systems administrator explain the various ways how you can guard your systems against these people **(6 marks).**