



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN
SECURITY AND FORENICS**

4thYEAR 1st SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: IIT 3415

COURSE TITLE: NETWORK MANAGEMENT AND SECURITY

EXAM VENUE:

STREAM:

DATE:

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) You have upgraded the firmware on your switches and access points. What documentation do you need to update state and explain? **(2marks)**
- b) UTP cable has specific colors for the wire associated with each pin. Based on the TIA/EIA 568B wiring standard, what is the correct color order, starting with pin 1? **(2mark)**
- c) Baselines, Laws, Policies, Procedures are the different types of Network documentation which one amongst them govern how the network is configured and operated as well as how people are expected to behave on the network? Explain your answer. **(2marks)**
- d) A user reports slowness on a network. The network administrator can begin to monitor the system by using what tool to look into the problem explain your answer? **(2marks)**
- e) Which type of server log will give information about? **(2marks)**
 - i) specific programs
 - ii) drivers and services
- f) State the two basic purpose of QoS **(2marks)**
- g) Which network-performance optimization technique can delay packets that meet certain criteria to guarantee usable bandwidth for other applications? Explain your answer **(2marks)**
- h) A network administrator needs to spread network traffic across multiple connections in which only one server is active and handling requests at a time. Which strategy could be used to help optimize traffic explain your answer? **(2marks)**
- i) A workstation presents an error message to a user. The message states that a duplicate IP address has been detected on the network. After establishing what has changed in the network, what should be the next step using the standard troubleshooting model? **(2marks)**
- j) Briefly explain four reasons for subnetting a network **(4marks)**
- k) As a systems admin responsible for the management of Network you have been tasked to measure the performance of your network components, briefly state the components that you would baseline **(4marks)**
- l) State at least four reasons as to why you would want to optimize network performance? **(4marks)**

QUESTION TWO [20 MARKS]

- a) Quality of service (QoS) refers to the way the resources are controlled so that the quality of services is maintained. It's basically the ability to provide different priority of one or more types of traffic over other levels, to different applications, data flows, or users so that they can be guaranteed a certain performance level. QoS methods focus on one of five problems that can affect data as it traverses network cable briefly state and explain five problems **(10marks)**
- b) What do you understand by term convergence in relation to network design? **(2marks)**
- c) Briefly explain the Major Threats against Network Security **(8 marks)**

QUESTION THREE [20 MARKS]

- a) There are many theories and strategies you can apply to optimize performance on your network. All of them deal with controlling the traffic in some way. Briefly state and explain the strategies that you would use to ensure you have plenty of bandwidth available for those applications that need it, such as critical service operations, VoIP, and real-time multimedia streaming **(10marks)**
- b) What are the critical differences in SNMPv1, SNMPv2 and SNMPv3 **(6 marks)**
- c) Monitoring network traffic helps to identify and troubleshoot network problems explain two ways Monitoring traffic can be done. **(4marks)**

QUESTION FOUR [20 MARKS]

- a) Load balancing refers to a technique used to spread work out to multiple computers, network links, or other devices briefly using a diagram explain how you would implement load balancing in a network environment **(10marks)**
- b) You are faced with a problem in which client systems cannot consistently access the AP, you could try moving the access point to better cover the area, but then you may disrupt access for users in other areas. Briefly explain at least five things that you can do to troubleshoot AP coverage? **(5marks)**
- c) Assume you are an attacker briefly explain five steps that you would use to conduct an attack on a network scenario. **(5marks)**

QUESTION FIVE [20 MARKS]

- a) A user can't log in to the network. She can't even connect to the Internet over the LAN. Other users in the same area aren't experiencing any problems. You attempt to log in as this user from your workstation with her username and password and don't experience any problems. However, you cannot log in with either her username or yours from her workstation. What is a likely cause of the problem? **(4marks)**
- b) State and explain two types of media interference can adversely affect data transmissions over a cabled network media. **(4marks)**
- c) As a network manager explain three ways in which you would secure a wireless network? **(6marks)**
- d) Having a well-documented network offers a number of advantages explain **(6marks)**