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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATIONS, 2019/2020 ACADEMIC YEAR**  
**FOURTH YEAR, FIRST SEMESTER EXAMINATIONS**  
**FOR THE DEGREE OF BACHELOR OF SCIENCE**  
**(COMPUTER SCIENCE)**

Date: 9<sup>th</sup> April, 2019  
Time: 2.30 – 4.30pm

**KCS 403 – ADVANCED COMPUTER NETWORKS**

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) Differentiate between the following Networks terms;
- i) SSH and Telnet (2 Marks)
  - ii) VLAN and QOS (2 Marks)
  - iii) Firewall and IDS (2 Marks)
  - iv) http and https (2 Marks)
- b) You have been hired by Equity Bank as a Network Administrator , you have been assigned the work of subnetting the following  
IP Address Network : 192.168.4.0  
Class : C  
Networks : 15
- i) Get The Ranges of the Networks , Show At least First 6 Network Ranges (4 Marks)
  - ii) Using Formula , Calculate The Valid Hosts (2 Marks)
  - iii) Using Formula , Calculate The Maximum number of Networks (2 Marks)
  - iv) Why Are we not assigning the First and The Last IP Addresses (2 Marks)
- c) What are the Advantages of using Quality of Service on Your Network (4 Marks)
- d) What do understand by the following network security terms
- i) Vulnerability (2 Marks)
  - ii) Encryption (2 Marks)
  - iii) Zero Day (2 Marks)
  - iv) Man in the Middle Attack (2 Marks)

**QUESTION TWO (20 MARKS)**

- a) Defining the purposes of the following when assigning IP Address on your PC
  - i) Subnet Mask (3 Marks)
  - ii) Default Gateway (3 Marks)
  - iii) DNS Server (3 Marks)
- b) List two public IP Addresses used by DNS Server (3 Marks)
- c) Describe two rules used when assigning IPV6 (5 Marks)

**QUESTION THREE (20 MARKS)**

- a) Given that you want to access Google.com, a server that is not within your network , describe how you can get into it using two addresses concept (IP and MAC Addresses) (15 Marks )
- b) Describe two methods that you can assign your computer with IP Address (5 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Using relevant examples , differentiate between TCP and UDP (6 Marks)
- b) Using relevant examples, describe OSI Model sequentially and how you can use OSI to troubleshoot network. (14 Marks)

**QUESTION FIVE (20 MARKS)**

- a) What is Green Computing? (2 Marks)
- b) Describe three advantages of Virtualization Technology in a data center (3 Marks)
- c) Using suitable examples describe various services that are provided by cloud computing in any organization. (15 Marks)