



Kasarani Campus  
Off Thika Road  
Tel. 2042692 / 3  
P. O. Box 49274, 00100  
NAIROBI  
Westlands Campus  
Pamstech House  
Woodvale Grove  
Tel. 4442212  
Fax: 4444175

**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR**  
**SECOND YEAR, SECOND SEMESTER EXAMINATION**  
**FOR THE DIPLOMA IN BUSINESS & INFORMATION TECHNOLOGY**  
**DIT 1010 – DATA COMMUNICATION & NETWORKING**

Date: 09<sup>TH</sup> April 2024  
Time: 11:30AM – 1:30PM

**INSTRUCTIONS TO CANDIDATES**

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

**QUESTION ONE (30 MARKS)**

- a) Describe the functions of the following network devices
- i) Router (2 Marks)
  - ii) Switch (2 Marks)
  - iii) Patch panel (2 Marks)
  - iv) Wireless access point (2 Marks)
  - v) Network interface card(NIC) (2 Marks)
- b) Differentiate between TCP and UDP protocols as used in the transport layer of the OSI reference model (6 Marks)
- c) Describe four major duties and roles of network administrators (2 Marks)
- i) Phishing (2 Marks)
  - ii) Man in the middle attack (2 Marks)
  - iii) Sniffing (2 Marks)
  - iv) SQL injection (2 Marks)

**QUESTION TWO (20 MARKS)**

- a) Upon completion of your Diploma, you have been assigned a role of TCP/IP subnetting. Using the following details

IP Address: 192.168.5.0

Class: C

Number of Networks: 15

**Task:**

- i) Find the first six network ranges (6 Marks)
  - ii) Calculate the valid number of host per network (3 Marks)
  - iii) Calculate total number of networks (3 Marks)
  - iv) Describe the reasons why we don't assign the first and the last ip addresses in every network range (3 Marks)
- b) Describe two ways of assigning ip addresses on client or server and outline two advantages of each technique (5 Marks)

**QUESTION THREE (20 MARKS)**

- a) There are two known Ethernet cabling standards namely T568A and T568B. Describe color code arrangement of T568B (8 Marks)
- b) Outline advantages that come along with fiber optic cables (4 Marks)
- c) Identify the following networking tools and their functionalities (8 Marks)

i)



ii)



iii)



iv)



**QUESTION FOUR (20 MARKS)**

- a) Differentiate between the following terms as used in computer network
  - i) Peer to peer and server-client (3 Marks)
  - ii) DHCP server and DNS server (3 Marks)
  - iii) Public ip address and private ip address (3 Marks)
  - iv) SSH and Telnet (3 Marks)
- b) With an aid of a diagram, list and describe OSI reference model layers in order (8 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Giving out relevant examples differentiate between loopback and automatic private ip address (5 Marks)
- b) Describe the functions of the following networking commands
  - i) Ipconfig
  - ii) Ipconfig/release
  - iii) Ipconfig/renew
  - iv) Netstat
  - v) ICMP (Ping) (10 Marks)
- c) With an aid of a diagram, describe TCP 3-way handshake (5 Marks)