061006T4ICT

ICT TECHNICIAN LEVEL 6

IT/OS/ICT/CR/01/6

PERFORM COMPUTER NETWORKING

NOV/DEC 2023

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

TIME: 3 Hours

INSTRUCTIONS TO CANDIDATE

1. This paper has TWO sections A and B. Attempt questions in each section as per instructions given in the section.
2. You are provided with a separate answer booklet.
3. Marks for each question are indicated in the brackets.
4. Do not write on the question paper

This paper consists of 3 printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

SECTION A: 40 MARKS

Attempt ALL questions in this section.

1. Define the term *protocol* as used in computer networking. (1 Mark)

2. Define the following terminologies used in computer networking field. (6 Marks)
    i. Network
    ii. Network topology
    iii. Node

3. VPN is one of the important technologies used by most of the networking organizations and individuals in their day to day networking activities. State THREE of advantages of VPN. (3 Marks)

4. List the FIVE layers of the TCP/IP reference model. (4 Marks)

5. Networking devices such as smartphones and laptops require IP addresses to communicate with each other and access the internet. Outline TWO examples of Internet connections. (2 Marks)

6. Differentiate between *Straight-through* and *crossover* cables as used in network connection media. (2 Marks)

7. Compare and contrast the *TCP* and *UDP* protocols as used in data communication.
(6 Marks)

8. A company seeks to buy networking devices to set up a LAN. Some of the devices on the list include the following: hub, switch and router. Explain the purpose of each of these devices. (6 Marks)
    i. Hub
    i. Switch
    ii. Router

9. Using a diagram, illustrate and explain peer-to-peer (P2P) networks and server-based networks. (6 Marks)

10. Explain any TWO ways in which ARP protocol is associated with MAC/IP addresses.
(4 Marks)

SECTION B: 60 MARKS

Attempt any THREE questions in this section.

11.

a) Newly founded networking company seeks to employ a network administrator. Highlight FOUR duties he is required to perform. (4 Marks)

a) Explain THREE classes of ipv4 address giving examples in each. (6 Marks)

b) Explain FIVE benefits of **DHCP** protocol as used by network administrator during network configuration. (10 Marks)

12.

a) Discuss any FIVE types of networks used by individuals and organizations in real life. (10 Marks)

b) *Encryption* and *decryption* are important operations in the field of network communication. Distinguish between Encryption and decryption. (4 Marks)

c) Explain THREE benefits of their use. (6 Marks)

13.

a) Describe the 7 layered OSI reference model (14 Marks)

b) Discuss the following terms used in networking field. (6 Marks)

    i.   DNS

    ii.   NAT

    iii.   VLAN

14.

a) Wambilianga runs a small business with 10 computer devices. He seeks to know what type of IP addresses he should use to assign to his devices. Explain public, private and special ipv4 addresses. (6 Marks)

b) Advise him on what type of IP address he should use and justify. (4 Marks)

c) Explain FIVE types of network topologies commonly used in networking organizations. (10 Marks)

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