higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

DATA COMMUNICATION AND NETWORKING
NQF LEVEL 4

(10041014)

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09:00–12:00

This question paper consists of 7 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
DATA COMMUNICATION AND NETWORKING
NQF LEVEL 4
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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SECTION A

QUESTION 1

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1–1.10) in the ANSWER BOOK.

1.1 Which ONE of the following components is NOT integrated into a wireless home router?

A Range extender
B Access point
C Switch
D Router

1.2 IPSec is designed to provide security at the … layer of the OSI model.

A transport
B application
C network
D session

1.3 A coaxial cable consists of … concentric copper conductor(s).

A one
B two
C three
D four

1.4 Which access control method is used by the IEEE 802.11 standard for wireless LAN?

A CSMA/CD
B CSMA/CA
C ALOHA
D FDM

1.5 What does the abbreviation VLAN stand for?

A Vertical Local Area Network
B V-shaped Loop Area Network
C V-shaped Local Area Network
D Virtual Local Area Network

1.6 Which ONE of the following extends a private network across public networks?

A Local area network
B Enterprise private network
C Virtual private network
D Storage area network

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1.7 Network congestion occurs …

A in case of traffic overloading.
B when a system terminates.
C when the connection between two nodes terminates.
D during load shedding.

1.8 Which ONE of the following is not a networking device?

A Gateway
B Linux
C Router
D Firewall

1.9 What is the use of the ping command?

A To test if a device on the network is reachable
B To test a hard disk fault
C To test a bug in an application
D To test printer quality

1.10 The routing table of a router keep track of …

A MAC address assignments.
B port assignments to network devices.
C IP distribution address to network devices.
D routes for packet forwarding.

(10 × 1) **[10]**

QUESTION 2

Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (2.1–2.5) in the ANSWER BOOK.

2.1 A NOS must reside on a dedicated server computer to manage a network.

2.2 Telephone networks are fundamentally different from computer networks.

2.3 A hub is a networking device that connects network components, filters and forward frames as per MAC address table.

2.4 Circuit switching makes more efficient use of the communications capacity of a network than packet switching.

2.5 Two computers using TCP/IP can communicate even if they are based on different hardware and software platforms.

(5 × 1) **[5]**

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QUESTION 3

Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–G) next to the question number (3.1–3.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.1	Noise on a line caused by signals traveling along another line	A	ALOHA
3.2	Multiple-access method in which the bandwidth is divided into channels	B	contention
3.3	An access method in which nodes compete to send frames on the network	C	half duplex
3.4	Transmission mode in which communication can be two-way but not at the same time	D	HTTP
3.5	Application layer protocol for retrieving a web document from a web server	E	FDMA
		F	crosstalk
		G	full duplex

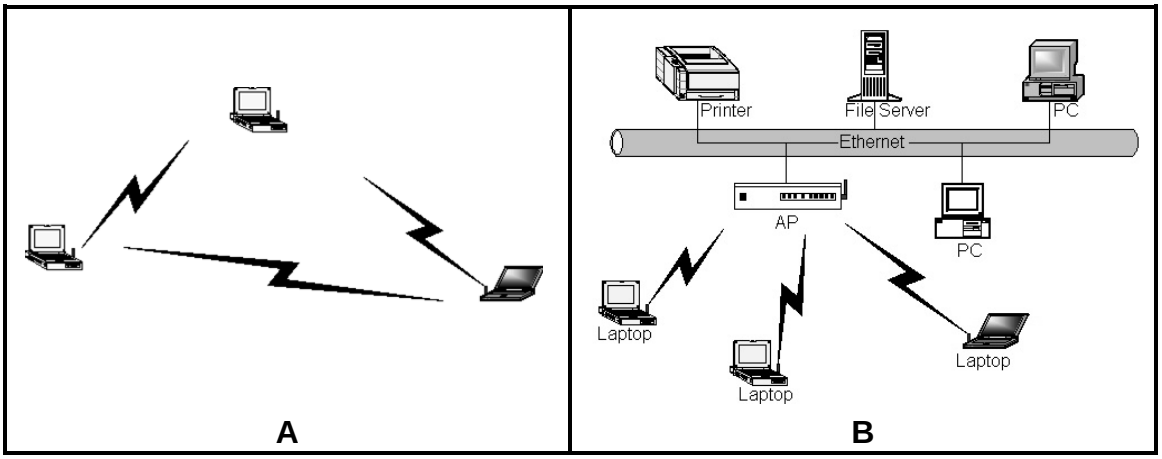
(5 × 1) **[5]**

TOTAL SECTION A: 20

SECTION B

QUESTION 4

4.1



4.1.1 Identify the TWO wireless topology modes shown above. (2)

4.1.2 Distinguish between the two wireless topology modes identified in QUESTION 4.1.1. (4)

4.2 Give the function of any TWO telephone network components. (2 × 2) (4)

4.3 At which layer of the OSI model does each of the following devices operate?

A – End system (host)
B – Router
C – Hub
D – Switch (4 × 2) (8)

4.4 Give the command that must be entered into the command prompt of a Windows computer to reveal each of the following information and related network statuses:

4.4.1 Tests for connectivity by transmitting a packet to another host specified in the command. If the network is functioning properly, the receiving host returns a reply packet.

4.4.2 Determines the route taken by packets to get to a particular destination. This tool can help determine where there is a loss in packets on the network, helping to identify problems.

4.4.3 It verifies network settings and connections. It can tell you a host's IP address, subnet mask and default gateway and other important network configuration information.

(3 × 2) (6)

4.5 Give FOUR characteristics of respectful communication. (4)

[28]

QUESTION 5

5.1 List the steps involved in terminating an RJ-45 connector in the correct order. (8)

5.2 Your organization has employed 10 new employees. Your IT Manager gives you a switch, 10 computers, a network printer and 12 straight through cables. The Manager wants you to connect or add the new employees to the network.

Explain how you are going to connect the switch, computers and printer to the network. (6)

5.3 Explain TWO tests that can be performed to verify that a network is functioning as required. (2 × 2) (4)

5.4 List FIVE tasks that must be completed once a network application has been installed. (5)

5.5 Name THREE things that a change management plan helps you to achieve. (3)

[26]

QUESTION 6

6.1 Give FOUR advantages of utility software. (4)

6.2 List FOUR common tasks performed by utility programs. (4)

6.3 Explain FOUR methods to improve the performance of a network. (4 × 2) (8)

6.4 Identify FOUR types of WAN connections. (4)

6.5 Explain THREE benefits of network documentation. (3 × 2) (6)

[26]

TOTAL SECTION B: 80
GRAND TOTAL: 100

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