higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

COMPUTER PRINCIPLES N4

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
COMPUTER PRINCIPLES N4
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. Use only a black or blue pen.
5. Write neatly and legibly.

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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 What is the name of the circuit board that contains the processor of a computer?

A Motherboard
B Central processing unit
C Microprocessor
D CPU

1.2 Which of the following is considered the "brain" of a computer?

A Mouse
B Keyboard
C CPU
D RAM

1.3 Which type of memory is used for temporary storage of data that the CPU needs to access quickly?

A CD
B DVD
C Internal hard drive
D RAM

1.4 Which storage device provides permanent storage for data, applications, and the operating system?

A CD
B DVD
C Internal hard drive
D RAM

1.5 What is the role of the graphics processing unit (GPU) in a computer?

A Executing instructions and processing data
B Providing internet connectivity
C Rendering images, videos, and animations
D Storing and accessing data quickly

1.6 What is the purpose of the power supply unit (PSU) in a computer?

A Providing internet connectivity
B Rendering graphics for video games
C Supplying power to all the components in the computer
D Storing data and applications

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1.7 What is the role of the cache memory in a computer?

A Storing frequently accessed data and instructions
B Executing arithmetic and logic operations
C Controlling the flow of data and instructions
D Rendering graphics

1.8 Which of the following is an example of an input device?

A Monitor
B Printer
C Keyboard
D Speakers

1.9 What is the purpose of the system clock in a computer?

A Providing power to the components
B Synchronising the operation of the CPU
C Storing data and instructions
D Displaying output

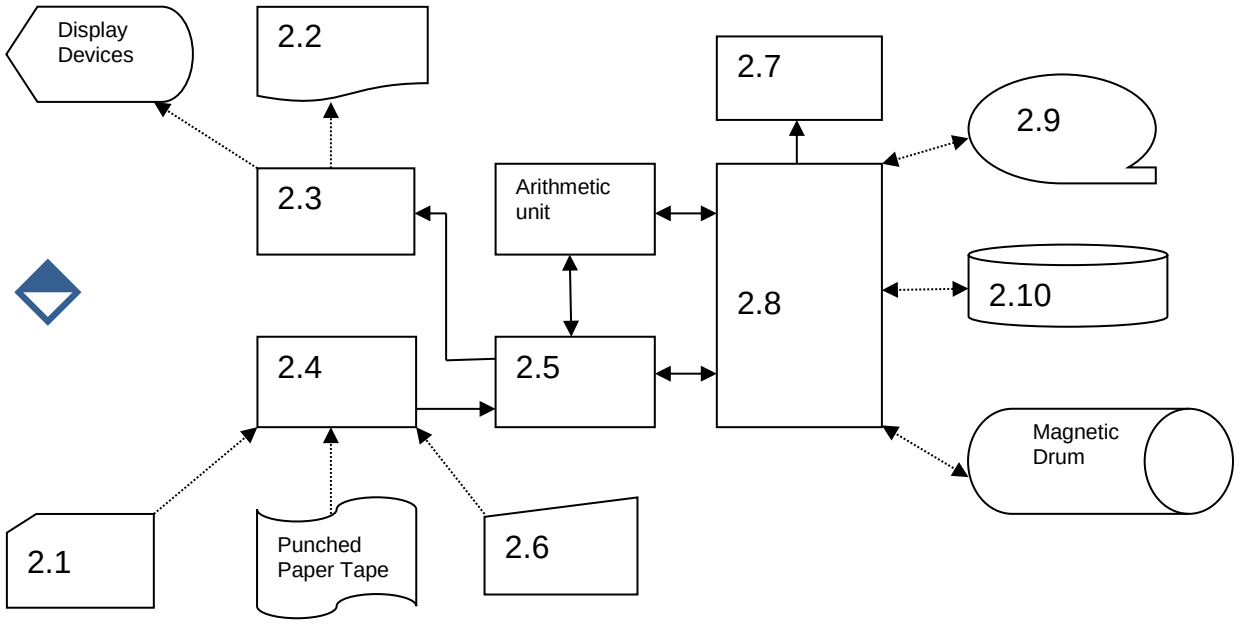
1.10 What are expansion cards used for in a computer?

A Providing power to the CPU
B Increasing the storage capacity of the computer
C Adding extra functionalities to the computer
D Cooling the computer components

(10 × 1) **[10]**

QUESTION 2

Provide the name of the components in the following block diagram of a digital computer by writing only the answer next to the question number (2.1−2.10) in the ANSWER BOOK.



[10]

QUESTION 3

Choose a term from COLUMN B that matches an item in COLUMN A. Write only the letter (A–J) next to the question number (3.1–3.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.1	A type of storage device that uses flash memory for faster data access	A	ALU
3.2	The main circuit board that connects all components of a computer	B	RAM
3.3	A program designed to detect and remove viruses and other malicious software	C	operating system
3.4	Temporary memory used by the CPU to store data for quick access	D	malware
3.5	Malicious software designed to harm or exploit any programmable device	E	hard disk drive (HDD)
3.6	The central processing unit responsible for executing instructions	F	antivirus software
3.7	A type of malware that secretly collects user information	G	motherboard
3.8	The primary software that manages computer hardware and software resources	H	phishing
3.9	A type of cyber-attack that tricks users into providing sensitive information	I	SSD (solid-state drive)
3.10	A traditional storage device that uses spinning disks to read/write data	J	spyware

(10 × 1) **[10]**

QUESTION 4

Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (4.1–4.5) in the ANSWER BOOK.

4.1 Software updates are only necessary for operating systems, not for applications.

4.2 A motherboard is used for connecting all the components of a computer.

4.3 A firewall can be hardware and software-based.

4.4 The BIOS is stored in ROM and is responsible for booting up a computer.

4.5 Cloud storage is a form of secondary storage that requires an internet connection.

(5 × 1) **[5]**

QUESTION 5

Study the advertisement below and answer the questions that follow.

A friend wants to start an internet cafe and gaming lounge. The manager will also requires a machine for running the business. You provided the following specifications in a quote.

Machine 1	Machine 2	Machine 3 (Laptop)
TForce 6100-939 socket 939 motherboard 667MHz FSB Intel i7 Quad core Processor 2.90GHz Nvidia GeForce GTX 570 512MB PCI VGA card 620GB HDD Vista Ultimate CD/DVD rewriter 4GB RAM Ergonomically designed keyboard and mouse 10/100 Ethernet port 21" LCD screen **R15 999**	TForce 6000-775 socket 775 motherboard 667MHz FSB Intel dual core 3.60GHz Processor 1GB PCI-x graphics 1TB HDD Vista Home Edition CD/DVD rewriter 2GB RAM Ergonomically designed keyboard and mouse 10/100 Ethernet port 17" LCD screen **R6 999**	15.4" XGA screen 640GB HDD 2GB RAM Intel core i5 T3400 2.60GHz CPU CD/DVD writer Web cam 802.11 wireless Vista Home Premium 10/100 Ethernet port **R7 500**

5.1 Which of the desktop machines would you recommend for the gaming lounge? (1)

5.2 List THREE reasons for your answer to QUESITION 5.1. (3)

5.3 Which machine would be appropriate for the internet cafe? (1)

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5.4 Give ONE reason for your answer to QUESITION 5.3. (2)

5.5 The technician invites you to meet with him and the owner of the internet cafe and gaming lounge to discuss internet connectivity. You tell the owner that he requires some additional hardware to enable him to connect to the ISP. This hardware, you explain, is a router.

5.5.1 What does ISP stand for? (1)

5.5.2 Describe the function of a router. (3)

5.6 The solution requires that two buildings that are 150 m apart are connected.

5.6.1 What cable type would you suggest for such connection? (1)

5.6.2 Give a reason for your answer to QUESITON 5.6.1. (2)

5.6.3 Give THREE advantages of your proposed solution over wireless. (3)

5.7 To ensure a high-speed network for the gaming lounge, you quote on a 1GB/s network card. After installing a new plug and play network card, a serious error is detected.

5.7.1 What is meant by the term *plug and play*? (2)

5.7.2 The drivers for this card are not included in the operating system and will have to be installed from the CD that came with the card.

Explain what a *driver* is. (3)

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QUESTION 6

Read the following snippet and answer the questions that follow.

QBASIC PROGRAMMING

QBasic, short for Quick Beginners All-purpose Symbolic Instruction Code, is a programming language developed by Microsoft in the late 1980s. It was designed as an entry-level language to introduce beginners to the fundamentals of programming.
One of the defining features of QBasic is its straightforward syntax, which is easy for beginners to grasp. Commands like `PRINT`, `INPUT`, and `IF...THEN` are intuitive and closely resemble the English language, making it accessible even to those with no prior programming experience. QBasic supports both procedural and structured programming, allowing users to write clear and organised code. Its interactive environment provides immediate feedback, which is crucial for learning, as it allows users to see the results of their code instantly and make adjustments as needed.

6.1	What is the purpose of the `LET` statement in QBasic?	(2)
6.2	How can one display the text, "Hello, World!", on the screen in QBasic?	(2)
6.3	How does one concatenate two strings in QBasic?	(2)
6.4	Explain the use of the `MOD` operator in QBasic.	(2)
6.5	Describe the use of the `ON ERROR GOTO` statement in QBasic.	(2)
6.6	Explain the role of `DIM` in QBasic.	(2)
6.7	How can one terminate a `DO...LOOP` prematurely?	(2)
6.8	List TWO ways in which one can create an infinite loop in QBasic.	(4)
6.9	What is the difference between `DO...LOOP` and `FOR...NEXT` in QBasic?	(4)

[22]

QUESTION 7

Read the following snippet and answer the questions that follow.

PROPER MAINTENANCE OF A COMPUTER ROOM

Maintaining proper ventilation, humidity control, and avoiding eating in the computer room are essential for ensuring the safety and longevity of electronic equipment. Adequate ventilation prevents overheating, while balanced humidity levels reduce the risk of condensation and static electricity, both of which can damage sensitive components. Eating should be restricted to avoid spills or crumbs that could cause malfunctions. Additionally, static electricity, often caused by dry air, can be mitigated by using anti-static mats and wrist straps, ensuring that the environment remains safe for both the equipment and the users.

7.1	Why is ventilation important in a computer room?	(2)
7.2	How does humidity affect computer components?	(2)
7.3	What are the risks of eating in a computer room?	(2)
7.4	Why is static electricity a concern in computer rooms?	(2)
7.5	How can one reduce the risk of static electricity in a computer room?	(2)
7.6	How does dry air contribute to static electricity?	(2)
7.7	List any equipment that can help prevent static electricity in a computer room.	(1)
7.8	Why is it important to control the environment in a computer room?	(2)

[15]

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QUESTION 8

8.1 Suppose that one were to write a program to compute the interest on a bank account on a daily basis. You mistakenly wrote a program that computes interest on an annual basis.

What type of program error is this? (1)

8.2 An error is produced when one omits a punctuation symbol from a program.

What type of error is this? (1)

8.3 What type of error(s) is discovered by the compiler? (1)

8.4 During computer programming, the compiler will detect certain kinds of mistakes and will write out an error message when it finds a mistake.

What are THREE main types of program errors? (3)
[6]

TOTAL: 100

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