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ZANZIBAR EXAMINATION COUNCIL

FORM THREE ENTRANCE EXAMINATION, 2003

063   **INFORMATION AND COMPUTER STUDIES**

Time: 2:30 Hours.   **ANSWER**

INSTRUCTIONS TO CANDIDATES

1. This paper consists of Three (3) sections A, B and C.

2. Answer **ALL** questions from Section A and B and **ONLY ONE** questions from section C

3. Write your examination number on each page.

4. Write all answers on the space provided.

5. Use a blue or black pen in writing. Drawings must be in pencil.

6. Cellular phones and unauthorized materials are not allowed in the examination room.

Question number	THIS PART FOR EXAMINER'S ONLY	
	MARKS	SIGNATURE
1.		
2.		
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12.		
TOTAL		

SECTION A (15 Marks)

Answer all questions in this section.

1. Choose the correct answer and write its letter in the table below.

i) Which device temporarily stores instructions and data currently in use by the CPU?

A: ROM

B: RAM

C: Hard disk

D: Flash drive

The correct answer is B: RAM.

RAM temporarily holds data and instructions that the CPU needs while running programs. ROM and hard disks store data permanently, while flash drives are removable storage.

ii) Which of the following is a multimedia input device?

A: Microphone

B: Scanner

C: Digital camera

D: All of the above

The correct answer is D: All of the above.

Microphones capture audio, scanners convert physical documents to digital, and digital cameras capture images and video, all serving as input devices.

iii) The type of software that translates high-level programming code into machine code is called:

A: Compiler

B: Spreadsheet

C: Browser

D: Database

The correct answer is A: Compiler.

A compiler converts human-readable programming code into machine-readable instructions that the CPU can execute. Spreadsheets, browsers, and databases do not perform this function.

iv) Which of these is **not** an example of a database management system?

A: Oracle

B: MySQL

C: Photoshop

D: Microsoft Access

The correct answer is C: Photoshop.

Oracle, MySQL, and Microsoft Access are database management systems that store, retrieve, and manage data. Photoshop is for image editing, not data management.

v) Which device connects multiple computers within a network and manages data traffic?

A: Hub

B: Switch

C: Keyboard

D: Monitor

The correct answer is B: Switch.

Switches connect devices on a network and direct data traffic efficiently. Hubs connect devices but are less efficient. Keyboards and monitors are input/output devices, not network management tools.

vi) A computer that is portable and has an integrated screen and keyboard is called:

A: Desktop

B: Notebook

C: Server

D: Mainframe

The correct answer is B: Notebook.

A notebook, or laptop, combines the screen, keyboard, and CPU in a single portable unit. Desktops and servers are not portable, and mainframes are large multi-user systems.

vii) Which of the following is **not** a function of a word processor?

A: Spell check

B: Slide creation

C: Formatting text

D: Table insertion

The correct answer is B: Slide creation.

Slide creation is a function of presentation software, not word processors. Spell check, formatting text, and table insertion are core functions of word processors.

viii) Which device helps visually impaired users read printed text?

A: OCR scanner

B: Screen reader

C: Joystick

D: Touchpad

The correct answer is B: Screen reader.

Screen readers convert text on the screen into spoken words or Braille, assisting visually impaired users. OCR scanners digitize printed text but do not provide audio feedback.

ix) Identify the software that protects data from unauthorized access.

A: Firewall

B: Word processor

C: Antivirus

D: Spreadsheet

The correct answer is A: Firewall.

A firewall monitors and blocks unauthorized network access, protecting data. Antivirus protects against malware, but a firewall focuses on network security.

x) A small area network covering a single building is called:

A: LAN

B: WAN

C: MAN

D: VPN

The correct answer is A: LAN.

A Local Area Network (LAN) connects computers in a limited area like a building. WAN spans large areas, MAN covers cities, and VPN is a secure virtual network over the internet.

2. Match the items in Column A with the correct description in Column B.

i) Converts digital data to sound → D: Speaker

Speakers output audio by converting digital signals to sound waves.

ii) Detects card information electronically → C: Card reader

Card readers read data stored on magnetic or electronic cards.

iii) Transfers signals over long distances without degradation → E: Repeater

Repeaters amplify and retransmit signals to maintain quality across distances.

iv) Provides real-time location of a vehicle → B: GPS device

GPS devices use satellite signals to track the location of objects in real time.

v) Captures moving images → A: Webcam

Webcams record video and stream moving images to computers.

SECTION B (75 Marks)

3. Explain three ways in which computers have impacted business efficiency.

Computers automate repetitive tasks such as accounting, payroll, and inventory management, reducing errors and saving time.

They facilitate data analysis and decision-making by processing large volumes of information quickly and accurately.

Computers enable online communication, e-commerce, and remote collaboration, expanding market reach and reducing operational costs.

4. Describe two disadvantages of vacuum tube computers.

Vacuum tube computers generated excessive heat, which caused frequent failures and required large cooling systems.

They were large, heavy, and consumed enormous amounts of electricity, making them impractical for widespread use.

5. a) List five standard icons found on macOS desktop.

    Common macOS icons include Finder, Trash, Launchpad, Applications folder, and Downloads folder. These icons help users navigate and access essential functions quickly.

    b) Compare CLI and GUI in terms of efficiency for experienced users.

    Experienced users may perform tasks faster using CLI due to direct commands and automation possibilities, though it requires knowledge of command syntax.

    GUI is easier for beginners but can be slower for repetitive tasks as it relies on menus and clicks.

6. a) Distinguish between joystick and stylus.

    A joystick is a lever-based input device used for navigation or gaming.

    A stylus is a pen-like device used to write, draw, or interact with touchscreens.

    b) Explain the difference between MICR and OMR.

    MICR reads magnetic ink characters on cheques for banking purposes.

    OMR detects marked areas on paper forms, commonly used in exams and surveys.

    c) Name two features of ROM.

    ROM is non-volatile, retaining data even when the computer is powered off.

    It stores firmware essential for booting the computer.

    d) List three examples of cache memory.

    L1, L2, and L3 caches are examples of cache memory that store frequently used data for faster CPU access.

7. a) Define computer lab.

A computer lab is a designated room equipped with computers and network access, intended for teaching, learning, research, or computer-based training.

b) Outline four safety rules to follow in a computer lab.

Do not eat or drink near computers to avoid spills.

Keep electrical cables organized to prevent tripping hazards.

Ensure proper ventilation to avoid overheating of devices.

Follow ergonomic practices to prevent strain injuries.

c) List three hazards that may destroy a computer.

Power surges can fry internal circuits.

Spills of liquids can cause short circuits.

Physical impact or dropping can damage components.

8. a) Define:

i) Software application
A software application is a program designed to perform a specific task, such as word processing or spreadsheet calculation.

ii) File extension
A file extension is a suffix in a file name that indicates its type, such as .docx or .xlsx.

iii) Network
A network is a group of interconnected computers and devices that share resources and communicate.

b) Explain four basic mouse operations.

Single-click selects items.

Double-click opens files or applications.

Right-click displays context menus for additional options.

Drag-and-drop moves or copies files or objects.

9. a) Describe the steps to save a presentation on an external hard drive.

Connect the external hard drive to the computer.

Open the presentation and select "Save As."

Choose the external hard drive as the destination and click "Save."

b) List five types of productivity software.

Word processors, spreadsheets, presentation software, email clients, and database management systems.

10. a) Define network topology.

Network topology is the physical or logical arrangement of devices and their connections in a network.

b) Illustrate and explain ring topology.

In ring topology, each device connects to two others, forming a circular pathway. Data travels in one or both directions around the ring.

c) State two differences between MAN and WAN.

MAN covers a city or metropolitan area, while WAN spans multiple cities or countries.

MAN typically has higher speeds than WAN due to shorter distances.

SECTION C (10 Marks)

11. a) Define spreadsheet.

Spreadsheet software organizes data in rows and columns and supports calculations, charting, and analysis.

b) Using a dataset of exam scores:

i) Formula to calculate the sum of each student's score
=SUM(B2:E2)

ii) Formula to find the minimum score
=MIN(B2:E2)

iii) Determine the average score per subject
=AVERAGE(B2:B10)

12. a) Explain the difference between "Print" and "Print Preview."

"Print" sends the document directly to the printer.

"Print Preview" shows how the document will appear on paper before printing, allowing adjustments.

b) List essential devices needed to connect an office network to the internet.

Modem to access ISP, router to distribute connection, network cables or Wi-Fi adapters, and computers or devices for access.