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ZANZIBAR EXAMINATION COUNCIL

FORM THREE ENTRANCE EXAMINATION, 2002

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.		
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12.		
TOTAL		

Section A: (15 Marks)

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

i) The primary function of the motherboard is to:

A: Store data

B: Connect all hardware components

C: Provide power to the system

D: Display output

Answer: B: Connect all hardware components

The motherboard is the main circuit board of a computer. It connects and allows communication between the CPU, RAM, storage devices, and other peripherals. While it provides slots for components and distributes power, its main role is connectivity, not storage or output.

ii) Which of the following is an example of application software?

A: Windows 10

B: Microsoft Word

C: BIOS

D: Linux

Answer: B: Microsoft Word

Application software is designed for end-users to perform tasks, such as word processing, spreadsheets, or presentations. Microsoft Word is a word processor, whereas Windows 10 and Linux are operating systems and BIOS is firmware.

iii) The process of booting a computer involves:

A: Loading the operating system into memory

B: Turning off the computer

C: Installing new hardware

D: Updating software

Answer: A: Loading the operating system into memory

Booting is the startup process of a computer, where the operating system is loaded into RAM so the system can function. Turning off, installing hardware, or updating software are separate activities.

iv) Which of the following is not a type of computer network topology?

A: Star

B: Ring

C: Tree

D: Square

Answer: D: Square

Star, ring, and tree are recognized network topologies. "Square" is not a valid network topology.

v) The function of the ALU is to:

A: Perform arithmetic and logical operations

B: Manage memory

C: Control data flow

D: Provide user interface

Answer: A: Perform arithmetic and logical operations

The Arithmetic Logic Unit (ALU) performs calculations like addition, subtraction, and logical operations like comparisons. Memory management and data control are handled by other parts of the CPU.

vi) Which of the following is a type of optical storage device?

A: Hard disk

B: CD-ROM

C: Flash drive

D: Magnetic tape

Answer: B: CD-ROM

CD-ROM uses lasers to read and write data, making it an optical storage device. Hard disks, flash drives, and magnetic tapes use magnetic or electronic storage.

vii) The main advantage of using a solid-state drive (SSD) over a hard disk drive (HDD) is:

A: Higher storage capacity

B: Faster data access speed

C: Lower cost

D: Larger physical size

Answer: B: Faster data access speed

SSDs use flash memory, which allows much faster data read/write speeds than traditional HDDs, improving system performance.

viii) Which of the following is a type of malware?

A: Firewall

B: Antivirus

C: Trojan horse

D: Router

Answer: C: Trojan horse

Trojan horse is malicious software disguised as legitimate software. Firewalls and antivirus protect against malware, and routers manage network traffic.

ix) The purpose of a device driver is to:

A: Provide security

B: Enable hardware to communicate with the operating system

C: Store data

D: Display output

Answer: B: Enable hardware to communicate with the operating system

Device drivers are software that allow the OS to recognize and control hardware devices. Without drivers, hardware may not function correctly.

x) Which of the following is an example of a web browser?

A: Microsoft Excel

B: Google Chrome

C: Adobe Photoshop

D: VLC Media Player

Answer: B: Google Chrome

Web browsers are programs used to access the internet and websites. Excel is a spreadsheet program, Photoshop is for graphics, and VLC is for media playback.

2. Match the terms in Column A with their descriptions in Column B.

COLUMN A	COLUMN B	Answer
i. URL	B. Address of a website	B
ii. HTTP	C. Protocol for transferring web pages	C
iii. RAM	D. Temporary memory storage	D
iv. BIOS	E. Basic input/output system	E
v. OS	A. Software that controls hardware	A

Section B: (75 Marks)

3. a) Define the term 'computer virus'.

   A computer virus is a malicious program that can replicate itself and infect files or systems, potentially causing data corruption, deletion, or malfunction.

   b) Explain two methods to protect a computer from viruses.

   Install and regularly update antivirus software to detect and remove viruses. Avoid downloading files or opening attachments from unknown sources, as these are common ways viruses spread.

4. a) What is a spreadsheet?

   A spreadsheet is a computer program used for organizing, analyzing, and storing data in a tabular form of rows and columns. It allows automatic calculations and data visualization through charts.

   b) List and explain three basic functions of a spreadsheet application.

   SUM: Adds a range of numbers together.

AVERAGE: Calculates the mean of selected numbers.

IF: Performs logical tests to return different values depending on conditions.

5. a) Define the term 'internet'.

    The internet is a global network of interconnected computers that communicate using standardized protocols, allowing the sharing of information, resources, and services worldwide.

    b) Explain the difference between the internet and the World Wide Web.

    The internet is the physical network of computers and servers. The World Wide Web is a service that uses the internet to access websites and web pages via browsers.

6. a) What is a database?

    A database is an organized collection of data stored electronically to allow efficient retrieval, management, and manipulation.

    b) List and explain three types of database management systems.

    Hierarchical DBMS: Organizes data in a tree structure with parent-child relationships.

    Relational DBMS: Stores data in tables with relationships among them.

    Network DBMS: Uses graph structures, allowing multiple relationships between records.

7. a) Define the term 'computer network'.

    A computer network is a collection of interconnected computers that share resources, data, and communication channels.

    b) Explain the difference between LAN and WAN.

    LAN (Local Area Network) covers a small area like a building and provides high-speed connectivity.

    WAN (Wide Area Network) spans larger areas like cities or countries and usually has lower speed due to distance.

8. a) What is the purpose of an operating system?

    An operating system manages hardware and software resources, provides a user interface, and enables applications to run.

    b) List and explain three types of operating systems.

    Batch OS: Executes jobs in batches without user interaction.

Multitasking OS: Allows multiple programs to run simultaneously.

Real-time OS: Provides immediate response to inputs, used in critical applications like industrial control.

9. a) Describe the steps involved in creating a new folder in Windows operating system.

Right-click on the desktop or inside a directory, select 'New', then 'Folder'. Type a name for the folder and press Enter.

b) Explain how to change the desktop background in Windows.

Right-click the desktop, select 'Personalize', choose 'Background', select an image or browse for your own, and click 'Apply'.

10. a) What is the function of the CPU in a computer system?

The CPU executes instructions, performs calculations, and controls the operations of other hardware components.

b) List four types of computer memory and briefly describe each.

RAM (Random Access Memory): Volatile memory for temporary storage during operation.

ROM (Read-Only Memory): Non-volatile memory storing essential startup instructions.

Cache: Small, fast memory within the CPU for frequently used data.

Virtual memory: Uses hard disk space to extend RAM temporarily when physical memory is insufficient.

Section C: (10 Marks)

11. a) Define the term 'computer virus'.

A computer virus is a malicious program capable of spreading across files or systems and causing damage.

b) Explain two methods to protect a computer from viruses.

Use antivirus software and keep it updated. Avoid suspicious downloads or email attachments.

c) What is a spreadsheet?

A spreadsheet is a program for organizing and analyzing data in rows and columns, capable of performing calculations and generating charts.

12. a) List and explain three basic functions of a spreadsheet application.

SUM: Adds a group of numbers together.

AVERAGE: Finds the mean of numbers.

IF: Performs conditional logic to return different values based on specified criteria.

b) Define the term 'computer hardware'.

Computer hardware refers to the physical components of a computer system that can be seen and touched.

c) List and describe five essential components of a computer system.

CPU: Executes instructions and manages operations.

RAM: Temporary memory for active applications.

Hard disk: Permanent storage for programs and data.

Monitor: Visual output device.

Keyboard: Input device for typing and issuing commands.