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ZANZIBAR EXAMINATION COUNCIL

FORM THREE ENTRANCE EXAMINATION, 2001

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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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 is primarily used to store temporary data while a computer is running?

A: Hard disk

B: RAM

C: Flash drive

D: CD-ROM

The correct answer is B: RAM.

RAM (Random Access Memory) is volatile memory used by the computer to store data temporarily while programs are running. Hard disks and flash drives store data permanently, and a CD-ROM is read-only storage.

ii) Which of the following is an example of output that can be both visual and tactile?

A: Printer

B: Touchscreen

C: Monitor

D: Scanner

The correct answer is B: Touchscreen.

A touchscreen allows users to see information visually and interact with it using touch, combining both visual and tactile feedback. Printers and monitors provide only visual output, while scanners are input devices.

iii) What type of software is responsible for managing hardware resources and providing services to application programs?

A: Application software

B: System software

C: Programming language

D: Utility software

The correct answer is B: System software.

System software, such as operating systems, manages hardware, allows applications to run, and provides

Prepared by Maria Marco for TETEA

essential services like memory management. Application software serves user tasks, and utility software assists in maintenance.

iv) Which of the following is not considered a cloud computing service?

A: Google Drive

B: Dropbox

C: Microsoft Excel

D: iCloud

The correct answer is C: Microsoft Excel.

Cloud services provide storage or computing resources online. Google Drive, Dropbox, and iCloud are cloud storage services, while Microsoft Excel is desktop software (though it has an online version, the basic software itself is not a cloud service).

v) Which device converts digital data into analog signals suitable for transmission over telephone lines?

A: Modem

B: Router

C: Switch

D: Hub

The correct answer is A: Modem.

A modem (modulator-demodulator) converts digital data from a computer into analog signals for transmission over telephone lines, and vice versa. Routers, switches, and hubs operate mainly at the network level and do not perform this conversion.

vi) A computer designed for a single user that combines all components in one unit is called:

A: Desktop

B: Mainframe

C: Microcomputer

D: Supercomputer

The correct answer is C: Microcomputer.

A microcomputer is a single-user computer, like a desktop or laptop. Mainframes and supercomputers serve multiple users and large-scale tasks. Desktop is a general form but microcomputer is the correct category.

vii) Which of the following is not a feature of presentation software?

A: Slide transition

B: Slide sorter

C: Font formatting

D: Spreadsheet calculation

The correct answer is D: Spreadsheet calculation.

Presentation software, like PowerPoint, supports slide transitions, slide sorting, and font formatting. Spreadsheet calculations are a feature of spreadsheet software like Excel.

viii) Which of the following devices is used to assist visually impaired students in reading text on a screen?

A: Screen magnifier

B: Braille printer

C: Joystick

D: Barcode reader

The correct answer is B: Braille printer.

A Braille printer converts digital text into Braille output for visually impaired users. Screen magnifiers enlarge content visually but do not provide tactile output. Joysticks and barcode readers are unrelated.

ix) Identify the software that protects computers from malicious programs.

A: Firewall

B: Antivirus

C: Disk defragmenter

D: Word processor

The correct answer is B: Antivirus.

Antivirus software detects and removes malicious programs. Firewalls control network traffic but are not primarily antivirus. Disk defragmenters and word processors do not protect against malware.

x) Which of the following represents a small personal network within a building?

A: LAN

B: WAN

C: MAN

D: PAN

The correct answer is A: LAN.

A Local Area Network (LAN) is a small network within a building or campus. WAN covers large areas, MAN covers cities, and PAN is a very personal network connecting a few devices over short distances.

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

COLUMN A

i. Device that amplifies signals in a network

ii. Device that tracks moving objects using satellites

iii. Device that detects light intensity and converts it to an electrical signal

iv. Device used to read magnetic stripes on cards

v. Device that outputs sound

COLUMN B

A. Microphone

B. GPS tracker

C. Speaker

D. Card reader

E. Repeater

F. Modem

G. Touchpad

H. Webcam

i) Device that amplifies signals in a network → E: Repeater

A repeater strengthens and retransmits signals in a network to maintain data integrity over long distances.

ii) Device that tracks moving objects using satellites → B: GPS tracker

A GPS tracker determines the location of an object by receiving signals from satellites.

iii) Device that detects light intensity and converts it to an electrical signal → H: Webcam

A webcam captures images and videos by detecting light and converting it to digital signals.

iv) Device used to read magnetic stripes on cards → D: Card reader

A card reader reads data stored on magnetic stripes of cards such as credit or ID cards.

v) Device that outputs sound → C: Speaker

A speaker converts electrical signals into audible sound, allowing users to hear audio output.

SECTION B (75 Marks)

Answer all questions in this section.

3. Explain three ways in which digital technology has improved communication in society.

   Digital technology allows instant messaging and email, which enable people to communicate quickly across the world, reducing the time and cost of sending messages.

   Social media platforms, powered by digital technology, allow individuals and organizations to share information, news, and updates widely, connecting communities and fostering interaction.

   Video conferencing and VoIP services facilitate face-to-face communication without physical presence, supporting business, education, and social interactions over long distances.

4. Describe two limitations of first-generation programming languages and how they affected computer operation.

   First-generation programming languages were written in machine code, which is difficult to understand and prone to errors, making programming time-consuming and complex.

   They were also hardware-dependent, meaning programs written for one type of computer could not run on another, reducing flexibility and portability.

5. a) Identify five icons typically found on a Linux desktop environment.

   Common Linux desktop icons include Home folder, Trash, Terminal, File System, and Network. Each icon provides quick access to important functions, improving usability.

   b) Compare and contrast CLI (Command Line Interface) and GUI (Graphical User Interface) in terms of usability and learning curve.

   CLI requires users to type commands, offering precise control and low resource use, but it has a steep learning curve and is less intuitive.

GUI provides visual elements like windows, icons, and menus, making it easier for beginners, but it can be slower and requires more system resources than CLI.

6. a) Explain the differences between an optical mouse and a touchpad.

An optical mouse uses light to detect movement on a surface and is typically external, providing precise control.

A touchpad is a flat surface built into laptops, allowing finger gestures to move the pointer without a separate device, but precision can be lower.

b) Differentiate between a Magnetic Ink Character Recognition (MICR) device and a Radio Frequency Identification (RFID) scanner.

MICR reads characters printed with magnetic ink, commonly used for banking checks.

RFID scanners detect and read information stored in RFID tags using radio waves, often used for inventory tracking.

c) List two characteristics of secondary memory.

Secondary memory is non-volatile, retaining data even when power is off.

It has high storage capacity compared to primary memory, allowing long-term storage of files and programs.

d) Identify three examples of removable storage media.

Examples include USB flash drives, CDs/DVDs, and external hard drives, all of which can be disconnected and used on different devices.

7. a) Define a computer lab and its purpose.

A computer lab is a designated room equipped with computers and networking facilities, intended for teaching, learning, and conducting research using digital tools.

b) Outline four key safety precautions when operating computers in a lab.

Avoid eating or drinking near computers to prevent spills.

Ensure proper grounding of electrical outlets to prevent shocks.

Arrange cables neatly to prevent tripping hazards.

Maintain adequate ventilation to prevent overheating.

c) List three potential causes of permanent damage to a computer.

Power surges can damage internal components.

Liquid spills can short-circuit hardware.

Physical shocks or drops can break internal parts like the hard drive or motherboard.

8. a) Define the following terms:

i) Software
Software is a set of instructions that tells a computer how to perform tasks.

ii) File
A file is a collection of data stored as a single unit on storage media.

iii) Folder
A folder is a container used to organize files in a computer system.

b) Explain four standard mouse operations and their functions.

Single-click selects an item or icon.

Double-click opens files, folders, or applications.

Right-click opens context menus for additional options.

Drag-and-drop moves or copies objects by holding and moving them with the cursor.

9. a) Describe how to save a text document to a USB drive.

Insert the USB drive into the computer.

Open the text document, select "Save As," choose the USB drive as the destination, and click "Save."

b) Mention five versions of Microsoft Office released in the last two decades.

Microsoft Office 2003, 2007, 2010, 2013, and 2016 are five widely used versions released in the last 20 years.

10. a) Define computer networking.

Computer networking is the practice of connecting computers and other devices to share resources, data, and communication services.

b) Explain star topology with a labeled diagram.

In star topology, all devices connect to a central hub or switch. Communication passes through the hub.

[Diagram: Central hub in middle with lines connecting to individual computers.]

c) Compare two differences between a LAN and a WAN.

A LAN covers a small area like a building, while a WAN spans large geographical areas.

LANs offer high-speed connections, whereas WANs are slower due to long-distance data transmission.

SECTION C (10 Marks)

Answer only one question from this section.

11. a) Define spreadsheet software.

Spreadsheet software is an application used to organize, analyze, and store data in rows and columns, often with calculation and charting capabilities.

b) Given a dataset of sales figures:

i) Write a formula to calculate the total sales for all products.

=SUM(A1:A10)

ii) Write a formula to determine the highest sales value.

=MAX(A1:A10)

iii) Calculate the average sales per product.

=AVERAGE(A1:A10)

12. a) Differentiate between "Save" and "Save As" in a word processor.

"Save" updates changes to the current document using its existing name and location.

"Save As" allows saving the document with a new name or location, creating a separate copy.

b) List the essential hardware components required to establish internet connectivity in an office.

A modem to connect to the internet service provider, a router to distribute the connection, network cables or Wi-Fi adapters, and computers or devices to access the network.