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ZANZIBAR EXAMINATION COUNCIL

FORM THREE ENTRANCE EXAMINATION, 2014

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.

	<b>THIS PART FOR EXAMINER'S ONLY</b>	
<b>Question number</b>	<b>MARKS</b>	<b>SIGNATURE</b>
<b>1.</b>		
<b>2.</b>		
<b>3.</b>		
<b>4.</b>		
<b>5.</b>		
<b>6.</b>		
<b>7.</b>		
<b>8.</b>		
<b>9.</b>		
<b>10.</b>		
<b>11.</b>		
<b>12.</b>		
<b>TOTAL</b>		

**Section A: (15 Marks)**

Attempt ALL questions from this section.

**1. Choose the letter of the correct answer and write it in the table provided.**

i) Which of the following is not a common input device?

- A. Keyboard
- B. Mouse
- C. Printer
- D. Joystick

**Correct answer: C. Printer**

A printer is an output device used to produce physical copies of digital documents. Keyboards, mice, and joysticks are all input devices that allow the user to interact with the computer by entering data or commands.

ii) The main circuit board of a computer is known as the:

- A. CPU
- B. Motherboard
- C. Hard disk
- D. RAM

**Correct answer: B. Motherboard**

The motherboard is the central printed circuit board that connects all components of a computer, including the CPU, memory, and peripheral devices. The CPU is the processing unit, the hard disk stores data, and RAM provides temporary memory.

iii) The term "volatile" in computer memory means:

- A. Data is permanent
- B. Data is lost when power is off
- C. It is very fast
- D. It is slow

**Correct answer: B. Data is lost when power is off**

Volatile memory, such as RAM, requires continuous power to retain data. When the computer is turned off, any information stored in volatile memory is erased.

iv) The acronym ROM stands for:

- A. Read Only Memory
- B. Random Only Memory
- C. Read Other Memory
- D. Random Outer Memory

**Correct answer: A. Read Only Memory**

ROM is a type of non-volatile memory that permanently stores instructions for starting the computer. It cannot be easily modified by the user.

v) Which one of these is a system utility software?

- A. Microsoft Word
- B. Disk Defragmenter
- C. Google Chrome
- D. Adobe Photoshop

**Correct answer: B. Disk Defragmenter**

Disk Defragmenter is a system utility that reorganizes fragmented data on a hard drive to improve performance. Microsoft Word and Adobe Photoshop are application software, while Google Chrome is a web browser.

vi) A computer that provides services to other computers in a network is called a:

- A. Client
- B. Workstation
- C. Server
- D. Node

**Correct answer: C. Server**

A server is a computer that manages network resources and provides services such as file storage, printing, and internet access to other computers called clients.

vii) Which of the following is a type of network topology?

- A. Bus
- B. Bridge
- C. Router
- D. Switch

**Correct answer: A. Bus**

A bus topology is a network layout where all devices are connected to a single central cable. Bridges, routers, and switches are network devices, not topologies.

viii) An example of a portable computer is a:

- A. Desktop computer
- B. Server
- C. Supercomputer
- D. Laptop

**Correct answer: D. Laptop**

A laptop is portable, lightweight, and can operate on battery power, unlike desktops, servers, or supercomputers, which are stationary and require external power sources.

ix) What is the process of converting data into a secret code to prevent unauthorized access called?

- A. Encryption
- B. Decryption
- C. Compression
- D. Formatting

**Correct answer: A. Encryption**

Encryption transforms readable data into an unreadable format that can only be accessed by someone with the correct decryption key. Decryption reverses this process. Compression reduces file size, and formatting prepares storage media.

x) A device that translates digital signals from a computer into a format that can be transmitted over telephone lines is a:

- A. Router
- B. Modem

- C. Switch
- D. Hub

**Correct answer: B. Modem**

A modem modulates digital signals into analog signals for transmission over telephone lines and demodulates incoming signals back into digital form. Routers, switches, and hubs handle data differently within networks.

**2. Match the items in Column A with their descriptions in Column B. Write the letter of the correct response in the table below.**

**COLUMN A**

- i. GUI
- ii. Piracy
- iii. Malware
- iv. LAN
- v. Hard disk

**COLUMN B**

- A. Software designed to disrupt computer operations or gain unauthorized access.
- B. The illegal copying or distribution of software.
- C. A network that connects computers within a small geographical area.
- D. A storage device that stores data on magnetic platters.
- E. A user interface that uses graphical elements like icons and menus.
- F. A network.

i - E: GUI, or Graphical User Interface, uses visual elements like icons, buttons, and menus to allow users to interact easily with computers.

ii - B: Piracy involves the unauthorized copying or distribution of software, which violates intellectual property rights.

iii - A: Malware is software intentionally designed to harm a computer system or gain unauthorized access to data.

iv - C: LAN, or Local Area Network, connects computers in a small, localized area such as a school or office for sharing resources.

v - D: A hard disk is a storage device that records data magnetically on spinning platters for long-term retention.

### **Section B: (75 Marks)**

Attempt ALL questions from this section.

**3. a)** Write down two differences between Primary storage and Secondary storage.

Primary storage, such as RAM, is directly accessible by the CPU and is used for temporary storage of data and instructions currently in use. Secondary storage, such as hard disks, stores data permanently and is not directly accessible by the CPU; it requires input/output operations. Primary storage is faster, but limited in capacity, while secondary storage has larger capacity but slower access speed.

**4. a)** Briefly explain the following:

i) **Word wrap** is a feature in word processing that automatically moves text to the next line when it reaches the end of the current line, ensuring continuous text flow without manually inserting line breaks.

ii) **Word art** allows users to create stylized text with special effects such as shadows, outlines, colors, and 3D effects, commonly used for titles and headings to enhance visual appeal.

b) Possible reasons for a computer being unable to save data on a disk include insufficient storage space on the disk, the disk being write-protected, or file corruption due to improper shutdown or virus infection.

c) i) Word processing is the use of a computer program to create, edit, and format text documents efficiently.

ii) Specialized software for word processing includes applications like Microsoft Word, which provide tools for editing, formatting, and organizing text.

iii) Two advantages of using word processing software are the ability to quickly edit and format text, and to store and print professional-looking documents efficiently.

5. a) The benefits of having voltage stabilizers in a computer room include protecting computers from voltage fluctuations that can damage components, ensuring consistent performance, and prolonging the lifespan of electronic equipment.

The benefits of surge protectors are that they shield computers from sudden spikes in electrical power caused by lightning or power surges, preventing permanent hardware damage and data loss.

b) Utility programs are software tools designed to maintain, analyze, and optimize computer performance, such as disk defragmenters or antivirus programs. Backup refers to creating copies of data to prevent loss in case of system failure or accidental deletion.

c) Dust accumulation in computers can block vents and fans, leading to overheating and performance issues. Spilled liquids can cause short circuits, damaging internal components and potentially leading to permanent data loss.

### **Section B: (75 Marks)**

Attempt ALL questions from this section.

6. a) A **search engine** is an online tool that allows users to find websites, documents, or information on the Internet by entering keywords. It indexes web content and provides relevant links based on the search query.

ii) Four common search engines are Google, Bing, Yahoo, and DuckDuckGo. These platforms help users access information quickly from the vast content available online.

b) **E-learning** refers to the use of electronic technologies, such as online courses or virtual classrooms, to deliver educational content and facilitate learning remotely. **Electronic commerce (e-commerce)** is the buying and selling of goods or services over the Internet.

c) Two advantages of e-learning include the flexibility for learners to access materials anytime and anywhere, and the availability of diverse learning resources that might not be accessible in a traditional classroom. It also reduces the cost of transportation and physical infrastructure for education.

7. a) Computer **peripherals** are external devices connected to a computer to input data, output results, or store information. They enhance the functionality of the computer system.

b) Four typical examples of computer peripherals include a printer, scanner, external hard drive, and keyboard. Each device serves a specific purpose: printers produce hard copies, scanners digitize documents, external hard drives expand storage, and keyboards allow data input.

c) The figure in the exam shows six parts of a personal computer. Two parts are labeled. For the remaining parts, students would identify devices such as the mouse, monitor, speakers, or CPU.

i) The remaining parts should be named according to their function.

ii) The importance of parts A, B, C, and D includes: part A (CPU) processes instructions and manages operations; part B (RAM) temporarily stores data for active programs; part C (monitor) displays output to the user; part D (keyboard) allows user input and command execution.

8. a) **Application software** is designed to perform specific tasks for users, such as word processing or graphic design. **System software** manages computer hardware and provides a platform for running applications, such as operating systems.

b) i) An **operating system (OS)** is system software that manages computer hardware and software resources and provides services for computer programs.

ii) Examples of operating systems include Windows and Linux.

iii) Four functions of an operating system are managing hardware resources, providing a user interface, controlling file management, and facilitating communication between applications and hardware.

9. a) Early computing devices that have been replaced include the abacus and mechanical calculators, which were limited in speed and capacity.

b) The first computer generation covered 1951–1958. The second generation covered 1959–1964, the third generation 1965–1971, and the fourth generation 1971–present.

c) Two characteristics of fifth-generation computers include the use of artificial intelligence to perform reasoning tasks and natural language processing capabilities to interact more effectively with humans.



**10. a) Data transmission media** refers to the physical or wireless pathways through which data travels from one device to another. It includes cables, optical fibers, and wireless signals.

b) Four types of transmission media are twisted-pair cable, coaxial cable, fiber optic cable, and radio waves.

c) i) Advantages of using fiber optic cable include high bandwidth that allows faster data transmission and resistance to electromagnetic interference.

ii) Disadvantages include higher cost of installation and difficulty in handling or repairing the cables compared to copper wires.

### **Section C: (10 Marks)**

Answer only ONE (1) question from this section.

**11.a)** To find the **average mark** for the entire class in a spreadsheet, use the formula:

=AVERAGE(A1:A10) if the marks are in cells A1 through A10. This calculates the mean of all entries in the selected range.

ii) To find the **sum of marks for each student**, use the formula: =SUM(B1:E1) where B1 to E1 contain the individual subject marks for a student.

iii) To find the **maximum mark** in the computer subject, use the formula: =MAX(C1:C10) if the computer marks are in column C. This identifies the highest score in that column.

b) Two applications of a spreadsheet program include creating budgets for personal or business use and performing statistical calculations for data analysis. Spreadsheets help organize data efficiently and produce visual charts for easier interpretation.

**12.a) Internet** is a global network of interconnected computers and servers that allows the sharing of data, resources, and services across the world.

- b) The difference between a **Hub** and a **Router** is that a hub simply broadcasts data to all devices in a network without filtering, while a router directs data between different networks and determines the best path for data to travel.
- c) Three benefits of having a **LAN** in a work organization include enabling resource sharing such as printers and files, facilitating communication between employees through email or chat systems, and improving collaboration on projects by allowing access to centralized databases.
- d) Three factors to consider when choosing an Internet Service Provider (ISP) include the reliability and speed of the connection, the cost of the service relative to budget, and the level of customer support available for troubleshooting or technical assistance.