**THE UNITED REPUBLIC OF TANZANIA**

**NATIONAL EXAMINATIONS COUNCIL OF TANZANIA**

**CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**036/1 INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours** **ANSWERS** **Year: 2008**

**Instructions**

1. This paper consists of sections A, B and C with a total of twelve questions

2. Answer all the questions in section A and B and one question in section C.

I. One Gigabyte (1GB) is equivalent to:
A. $2^{20}$ MB
B. $2^{30}$ bytes
C. $2^{10}$ TB
D. $2^{10}$ KB
E. $2^{10}$ bits

Solution: B. $2^{30}$ bytes
Reason: A gigabyte (GB) is defined as $2^{30}$ bytes in computer memory systems. Option A, $2^{20}$ MB, refers to a megabyte measurement and not a gigabyte. Option C, $2^{10}$ TB, is incorrect since terabytes are much larger units. Option D, $2^{10}$ KB, refers to kilobytes, which are smaller than gigabytes. Option E, $2^{10}$ bits, represents a much smaller measurement.

II. The following can help to identify a hyperlink while browsing a webpage:
A. Black and underlined words
B. Bolded and italicized words
C. Quoted and underlined words
D. Blue and underlined words
E. Maroon and underlined words

Solution: D. Blue and underlined words
Reason: Hyperlinks are commonly displayed as blue and underlined text to differentiate them from normal text. Option A, black and underlined, is not standard. Options B and C are not typical hyperlink indicators. Option E, maroon and underlined, is not a common convention for hyperlinks.

III. The reception desk at any organization is the same as _____ on the computer:
A. Window icon
B. Desktop icons
C. Desktop window
D. Desktop locator
E. Desktop bar

Solution: C. Desktop window
Reason: The desktop window on a computer is analogous to the reception desk, as it serves as the starting point or central hub for accessing resources. Option A, window icon, refers to a single application. Option B, desktop icons, are specific shortcuts. Option D, desktop locator, is not a standard term. Option E, desktop bar, refers to a different feature like the taskbar.

IV. In Excel, what sign begins when entering a simple formula in the cell?
A. +
B. =
C. #
D. @

E. $

Solution: B. =
Reason: In Excel, formulas always start with the equal sign (=) to indicate that a calculation or function is being performed. Options A, +, and D, @, are used within formulas but do not start them. Options C and E are not used to initiate formulas.

V. Which file system extension is used by default when saving a new document in Excel?
A. txt
B. rtf
C. xls
D. doc
E. ppt

Solution: C. xls
Reason: Microsoft Excel saves files with the extension `.xls` by default for older versions or `.xlsx` for newer ones. Option A, txt, and B, rtf, are used for plain text and rich text formats, respectively. Option D, doc, is for Word documents, and E, ppt, is for PowerPoint presentations.

VI. Which of the following is primarily an output device?
A. Monitor
B. Keyboard
C. RAM
D. Processor
E. CD ROM

Solution: A. Monitor
Reason: A monitor displays data, making it an output device. Option B, keyboard, is an input device. Options C, RAM, and D, processor, are internal components that do not output data directly. Option E, CD ROM, can be an input or storage device but is not primarily used for output.

VII. The type of network topology whereby data flows in only one direction is known as:
A. Ring
B. Linear
C. Star
D. Bus
E. Wan

Solution: B. Linear
Reason: In a linear topology, data flows in one direction along a single line. Option A, ring, involves bidirectional flow in some setups. Option C, star, connects all devices to a central hub. Option D, bus, supports two-way communication. Option E, WAN, is a type of network, not topology.

VIII. One of the following actions will send an application window on the taskbar:
A. Resize
B. Close
C. Maximize
D. Minimize
E. Save

Solution: D. Minimize
Reason: Minimizing reduces a window to the taskbar. Option A, resize, adjusts window size but keeps it visible. Option B, close, ends the application. Option C, maximize, makes it full-screen. Option E, save, applies to data, not window behavior.

IX. In IP addresses, maths.udsm.ac.tz represents:
A. Domain
B. Webpage
C. Organisation
D. Computer name
E. Website

Solution: A. Domain
Reason: In an IP address, the domain represents the unique address for the server hosting the content. Option B, webpage, refers to a specific page. Option C, organization, is broader than a domain. Option D, computer name, is not visible in IP addresses. Option E, website, refers to the entire online resource, not the address.

X. Which of the following is not important when searching for information on the internet?
A. Keywords specification
B. Use of common words
C. Operating system user knowledge
D. Search engine user knowledge
E. Use of uppercase letters

Solution: E. Use of uppercase letters
Reason: Search engines are case-insensitive, so the use of uppercase letters does not affect results. Options A, B, C, and D are critical for optimizing searches and retrieving accurate information.

2. Match the items or phrases in List A with the responses in List B by writing the letter of the correct response beside the item number.
List A
(i) Back up
(ii) Intranet
(iii) Numlock
(iv) HTML
(v) Multimedia

(vi) Bytes
(vii) Primary Key
(viii) Pixel
(ix) Personal Digital Assistants
(x) Web browser

List B
A. A kind of computer virus
B. Uniquely identify records
C. Largest WAN in the world
D. Used to open computer cases
E. Network within an organization
F. Controls arithmetic operations in the computer
G. Used to create web pages
H. Collection of sounds, pictures, and text animation
I. Used to activate numbers and arithmetic operators
J. Creates characters in the computer
K. Used to load web pages
L. Information security mechanism
M. Input devices
N. Software used to detect network errors
O. Shows hidden symbols in the computer
P. A dot expressing a portion of an image
Q. Fifth generation of computers
R. Eighth generation of computers
S. Keyboard and mouse

Solution:
(i) Back up - R. Eighth generation of computers
(ii) Intranet - E. Network within an organization
(iii) Numlock - I. Used to activate numbers and arithmetic operators
(iv) HTML - G. Used to create web pages
(v) Multimedia - H. Collection of sounds, pictures, and text animation
(vi) Bytes - J. Creates characters in the computer
(vii) Primary Key - B. Uniquely identify records
(viii) Pixel - P. A dot expressing a portion of an image
(ix) Personal Digital Assistants - Q. Fifth generation of computers
(x) Web browser - K. Used to load web pages

3. In the following items, write (T) for true statements and (F) for false statements.

(a) A bit is the smallest unit of data. T
(b) The quality of the computer depends on the speed as well as storage capacity. T

(c) A blinking line in a text or document is called a cursor. T
(d) Deleting a shortcut results in the deletion of the whole document saved in a storage media. F
(e) An item of data in a database is called a field. T
(f) Intranet is an example of a Metropolitan Area Network. F
(g) A highlighted text is copied by pressing CTRL + C and pasted by pressing CTRL + X. F
(h) Office assistant appears only when creating content documents using word processor. F
(i) A presentation file might contain audience, handouts, speaker notes, and electronic slides. T
(j) In MS Excel, if the formula = B4*C4 is in cell D4, the formula assigned to cell D5 is = B5*C5. T

4. (a) Outline any three (3) ways you use to create a table in Microsoft Word application.

- Using the "Insert Table" option under the Insert tab.
- Drawing a table manually using the "Draw Table" feature.
- Converting text into a table using the "Convert Text to Table" option.

(b)
(i) With the use of examples describe two (2) types of data in a computer.

- Numeric data: Examples include numbers like 123 or 456.
- Text data: Examples include strings like "Hello" or "World."

(ii) Differentiate between data and information.
- Data refers to raw facts and figures without context, e.g., "23, 45, 67."
- Information is processed and organized data that provides meaning, e.g., "Average temperature: 45°C."

5. (a) What is an output device?
An output device is hardware that conveys information from a computer to the user. Examples include monitors, printers, and speakers.

(b) With examples, briefly explain specialized applications of computers in the following areas:

(i) Banking
Computers are used for online transactions, ATM operations, and record management.

(ii) Library
Used for cataloging books, tracking borrowed materials, and accessing e-books.

(iii) Supermarkets
Utilized for barcode scanning, inventory management, and generating bills.

(iv) Schools
Used for e-learning, examination processing, and administrative tasks.

(v) Hospitals
Applied in patient records management, medical imaging, and lab tests.

6.

(a) Differentiate Telnet from FTP (File Transfer Protocol).
- Telnet: A protocol used for remote access to another computer over a network, allowing command execution.
- FTP: A protocol used for transferring files between a client and server over a network.

(b) Define the following terms:

(i) Dumb terminal
A device that relies on a host computer for processing and only displays input and output without its own processing power.

(ii) Intelligent terminal
A terminal capable of processing data independently of the host computer.

(iii) Hypertext Markup Language (HTML)
A standard language used to create and design web pages, structuring content with elements such as headings, paragraphs, and links.

(c) Give four (4) advantages of an electronic word processor over a typewriter.
- Ability to edit and format documents easily.
- Spellcheck and grammar-check features.
- Save and retrieve documents digitally.
- Integration with other tools for images, tables, and charts.

7. (a) Using your spreadsheet knowledge, indicate the data type that will be assigned in the following entries:

(i) December 14, 2008 - Date
(ii) Total scores - Text
(iii) December 14, 2008 - Date
(iv) =Average(A3:E3) - Formula

(b) Test scores worksheet:

(i) Generate a formula for calculating total scores for each student.
= B2 + C2 + D2

(ii) Generate a formula for calculating the average for each student.

= E2 / 3

(iii) Identify the cell reference for the maximum score.
C6

(iv) Identify the cell reference for the least score.
B2

8. (a) Write down three differences between a web browser and a search engine, giving examples in each case.

1. A web browser is software installed on a computer or device that allows users to access websites and view online content. Examples include Google Chrome and Mozilla Firefox. On the other hand, a search engine is an online tool that helps users locate specific information by typing in keywords. Examples of search engines are Google and Bing.

2. A web browser allows users to directly enter a website's URL to access it. For example, typing "www.example.com" in a browser will take the user directly to that website. In contrast, a search engine retrieves multiple links to related websites when users search using keywords, such as "best restaurants nearby."

3. A web browser can function offline to view downloaded or cached content. For instance, users can access previously downloaded web pages. Conversely, a search engine requires an active internet connection to search and retrieve results, as it relies on accessing databases online.

(b) (i) Define computer security.

Computer security is the practice of safeguarding computer systems, networks, and data from unauthorized access, theft, disruption, or damage. It involves implementing measures such as encryption, antivirus software, and firewalls to ensure the confidentiality, integrity, and availability of information.

(ii) Outline two measures you would use to secure computer hardware and data.

- Using strong passwords and encryption: This ensures that unauthorized users cannot access sensitive data, as encryption makes the data unreadable without the correct decryption key, and strong passwords reduce the chances of unauthorized entry.

- Installing antivirus software and performing regular updates: Antivirus software helps protect the system against malicious programs like viruses, worms, and ransomware. Regular updates ensure that the system is secure from newly discovered threats.

9. (a) What is software?

Software is a collection of programs, instructions, or data that a computer uses to perform specific tasks. Unlike hardware, which is the physical part of the computer, software is intangible and serves as the interface between the user and the hardware.

(b) Mention and explain briefly four functions of an operating system.

- Resource management: The operating system manages the computer's resources, such as the central processing unit (CPU), memory, and input/output devices, ensuring they are allocated efficiently to different tasks or programs.

- File management: It organizes and provides access to data stored on the system by creating, deleting, and arranging files in directories or folders. It also manages file permissions to ensure security.

- Process management: The operating system handles the execution of processes, including multitasking, by ensuring that multiple applications run smoothly without interfering with each other. It also schedules processes to optimize performance.

- User interface: It provides an interface for users to interact with the computer, either through graphical elements such as windows and icons or command-line inputs. This interaction allows users to perform tasks and communicate with the hardware effectively.

10. (a) What is Information Communication Technology (ICT)?

Information Communication Technology (ICT) refers to the use of technology to store, retrieve, transmit, and manipulate information. It includes a range of technologies such as computers, telecommunication systems, software, and internet-based tools that facilitate communication and access to data.

(b) The advent of ICT in Tanzania has brought both positive and negative impacts. Clarify this statement by giving two examples in each case.

Positive impacts:
- Improved communication: ICT has enabled faster and more efficient communication through emails, social media, and video conferencing.
- Enhanced education: ICT tools, such as online learning platforms, have made it possible for students to access educational resources and learn remotely.

Negative impacts:
- Unemployment: The introduction of automation and ICT systems in industries has led to job losses as manual labor is replaced by machines.
- Cybercrime: The increased use of ICT has led to challenges such as hacking, online fraud, and identity theft.

11. explain how a computer system works.

A computer system operates by following the Input-Process-Output model.

- Input: Data is entered into the system through input devices such as a keyboard, mouse, or scanner.
- Process: The central processing unit (CPU) processes the data by executing instructions and performing calculations.
- Storage: Data is temporarily stored in primary memory (RAM) during processing or permanently saved in secondary storage like a hard drive.
- Output: The processed data is displayed or output through devices such as monitors, printers, or speakers.

Diagram
Input --------> Processing (CPU) ----------> Storage -------> Output

12. (a) Give two points to distinguish a database from a presentation.

i. A database is a structured collection of data that allows for efficient retrieval, management, and updating, while a presentation is a visual display of information designed to communicate ideas to an audience.
ii. Databases are managed using database management systems (DBMS) like MySQL or Access, whereas presentations are created using tools like Microsoft PowerPoint or Google Slides.

(b) Outline three ways you could use in creating a presentation.

i. Using pre-designed templates: Start with a template provided by presentation software to structure and format slides.
ii. Adding multimedia elements: Enhance slides by including images, videos, animations, and sound to make the presentation engaging.
iii. Incorporating charts and graphs: Visualize data using charts or graphs to convey complex information clearly and effectively.