

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: 2009

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.

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I. A device that captures information and translates it into a form that can be processed and used by other parts of your computer is called:

- A. Output device
- B. Storage device
- C. Telecommunications device
- D. Input device
- E. Connector

Answer: D. Input device

II. A person whose functions is to make sure that all systems and networks within an organization are working properly is called:

- A. System administrator
- B. System analyst
- C. System developer
- D. Network controller
- E. Network technician

Answer: A. System administrator

III. The type of software that helps one to create websites and web pages is:

- A. Web browsing software
- B. Personal information management software
- C. Digital finance software
- D. Spreadsheet software
- E. DBMS software

Answer: A. Web browsing software

IV. The term _____ refers to the widespread use of mobile communication devices:

- A. IT
- B. PDA
- C. RAM
- D. Wireless revolution
- E. WWW

Answer: D. Wireless revolution

V. In a cold boot, a self-testing series of programs called _____ begins:

- A. Luna
- B. POST
- C. Dichot sync
- D. KNE
- E. Windows

Answer: B. POST

VI. Which one of the following chips provides flexibility and expandability for a computer system and contains essential information that is required every time the computer system is powered on?

- A. CPU
- B. RAM
- C. ROM
- D. Chip set
- E. AI

Answer: C. ROM

VII. Which of the following database organization would you choose to store photos?

- A. Hierarchy-based
- B. Network-oriented
- C. Relational-object
- D. Distributed
- E. Object-oriented

Answer: E. Object-oriented

VIII. _____ allows the computer user to control the pointer by moving and tapping a finger on the surface of a pad:

- A. Ball
- B. Touch pad
- C. MDR
- D. Mouse
- E. Dragster

Answer: B. Touch pad

IX. Which of the following is an interactive computer program that helps users solve problems?

- A. Expert system
- B. Natural language
- C. Robot
- D. Perception system
- E. User interface

Answer: A. Expert system

X. _____ is the process of accessing files from a disk:

- A. Fetching
- B. Storing
- C. Printing
- D. Viewing
- E. Reading

Answer: E. Reading

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) Data dictionary
- (ii) Fragmentation
- (iii) Bandwidth
- (iv) BIOS
- (v) Search engine
- (vi) Bit
- (vii) Virtual memory
- (viii) Field
- (ix) Cache memory
- (x) Ergonomics

List B

- A. Deals with how to arrange system technology to reduce comfort and avoid health risks
- B. Time used to save a document on a computer
- C. A form of memory that holds frequently used data and instructions
- D. Short form of Terabit
- E. A dictionary that enables the computer to work properly
- F. Defines the structure and properties of a database table
- G. Recreates a family tree
- H. Deals with physical relationships between people, technology, and their work environment
- I. Used to search information about the best person to use the locked computer
- J. A technique to supplement RAM
- K. A technique to supplement ROM
- L. Capacity of the communication medium
- M. A single piece of data in a database
- N. Checks input and output devices at shutdown
- O. Scattering of portions of files about the disk in nonadjacent areas
- P. A collection of related records
- Q. Checks input and output devices at startup
- R. Process of checking off hard disk drives for errors
- S. Allows users to locate specific documents through keywords

Solution:

- (i) E
- (ii) O
- (iii) L
- (iv) Q
- (v) S
- (vi) D

- (vii) J
- (viii) M
- (ix) C
- (x) A

3. In the following items, write (T) for True statements and (F) for False statements.

- (a) A main memory is a software component. F
- (b) A node is any device that is attached to a network. T
- (c) Desktop is the graphical user interface screen of an operating system. T
- (d) The CPU's Control Unit contains a list of all the operations the CPU can perform. F
- (e) The operating system is responsible for allocating RAM among the programs that are running. T
- (f) When a user sends a document to a network printer, the document is called a spool. T
- (g) Distributed computing means getting other computers on the network to do some of your processing. T
- (h) The expression Kbps stands for "thousand bits per second". T
- (i) In a document, the left and right margins must always be the same. F
- (j) A label is any number that you enter or any number that results from a computation. F

4. (a) What is multimedia?

Multimedia refers to the combination of different types of media, such as text, images, audio, video, and animations, to communicate information interactively.

(b) Explain two categories of multimedia.

1. Linear multimedia: Content progresses without any user interaction, such as movies.
2. Non-linear multimedia: Content allows user interaction to navigate through, such as websites.

(c) Mention and briefly explain two major characteristics of multimedia.

1. Interactivity: Users can engage and interact with the content.
2. Integration: Combines various forms of media to present information comprehensively.

5. (a) (i) Define e-mail.

E-mail, or electronic mail, is a method of exchanging digital messages through the internet or a computer network.

(ii) Briefly explain the three basic elements of a typical e-mail.

1. Sender's address: The email address of the person sending the message.
2. Recipient's address: The email address of the person intended to receive the message.
3. Subject line: A brief title summarizing the content of the email.

(b) (i) What is a spam?

Spam refers to unsolicited or irrelevant emails sent to a large number of recipients, often for advertising or phishing purposes.

(ii) List three examples of a spam.

- Unsolicited advertisements for products or services.
- Fake lottery or prize-winning notifications.
- Phishing emails requesting personal or financial information.

7.(a) Applications software can be divided into two categories, one basing on basic or general-purpose applications and the other basing on specialized applications. Explain the underlying difference between them.

General-purpose application software is designed for common, everyday tasks such as word processing, spreadsheet management, and browsing (e.g., Microsoft Word, Excel). Specialized application software, on the other hand, is tailored for specific tasks or industries, such as accounting software or architectural design tools (e.g., AutoCAD).

(b) Explain the importance of having the following features in a word processor:

(i) Word wrap

Word wrap allows text to flow automatically to the next line without requiring manual line breaks. This improves efficiency and ensures that text fits within the margins.

(ii) Bulleted and numbered lists

These features help organize content into clear, structured points, making it easier to read and understand.

(iii) Collaboration

Collaboration features enable multiple users to work on the same document simultaneously, improving productivity and teamwork.

8. (a) Give three benefits to society resulting from the use of computers.

- Improved communication through emails, social media, and video conferencing.
- Enhanced efficiency in industries such as healthcare, education, and finance.
- Access to vast amounts of information and educational resources online.

(b) Give three social problems associated with the use of computers.

- Increased cases of cyberbullying and online harassment.
- Addiction to social media and gaming, leading to reduced productivity.
- Privacy concerns due to unauthorized access and data breaches.

(c) Suggest ways to overcome the social problems mentioned in (b) above.

- Implement strict cybersecurity measures and educate users about online safety.

- Encourage balanced use of computers by setting time limits for recreational activities.
- Enforce laws against cybercrime and online harassment.

9.

(a) Differentiate between Worm and Virus as used in computer studies.

- A worm is a standalone program that replicates itself to spread across networks without needing a host file.
- A virus is a program that attaches itself to a host file and spreads when the host file is executed.

(b)

(i) Mention and write short notes on any five computer viruses.

- Trojan Horse: Disguises itself as legitimate software to steal information.
- Ransomware: Encrypts data and demands payment for decryption.
- Spyware: Monitors user activities and collects sensitive data.
- Boot Sector Virus: Infects the boot sector of a storage device.
- Macro Virus: Targets documents with macros, such as Microsoft Office files.

(ii) Explain three ways that can be used to safeguard computers against computer viruses.

- Install and regularly update antivirus software to detect and remove threats.
- Avoid opening email attachments or links from unknown sources.
- Use firewalls to prevent unauthorized access to computer systems.

10. (a) For each of the five generations of computers, state the hardware technology that characterized it.

- First generation: Vacuum tubes
- Second generation: Transistors
- Third generation: Integrated Circuits (ICs)
- Fourth generation: Microprocessors
- Fifth generation: Artificial Intelligence (AI) and advanced processors

(b) What trends are achieved regarding the size, cost, and processing speed of computers throughout the five generations?

- Size: Computers have become progressively smaller, moving from room-sized machines to handheld devices.
- Cost: The cost of computers has decreased due to advancements in manufacturing and technology.
- Processing speed: Processing speeds have significantly increased, allowing for faster computations and multitasking.

10. (a) Name a device used to input barcodes at the checkout.

A barcode scanner.

(b) Give two advantages of this type of system compared with a manual system.

(i) For the supermarket manager:

- Facilitates accurate inventory tracking, reducing errors in stock management.

(ii) For the shopper:

- Speeds up the checkout process, reducing waiting times.

(c) Most banks now have cash machines. The bank issues plastic cards and Personal Identification Numbers (PIN) to customers so they can get cash anytime.

(i) Give two items of data stored about the customer on the card.

- Account number.

- Cardholder's name.

(ii) Describe the purpose of PIN.

A PIN is used as a security measure to verify the identity of the cardholder before granting access to banking services.

(iii) State two advantages to the customer of having cash machines.

- Allows 24/7 access to cash, even outside banking hours.
- Enables quick transactions without needing to visit the bank physically.

11. (a) In a particular health center, a local area network (LAN) is used, providing terminals and local printers in each of the doctors' rooms. Give two advantages of this network instead of using stand-alone machines in each doctor's room.

- Facilitates easy sharing of patient records between doctors.
- Reduces costs as multiple terminals share resources like printers.

(b) It is proposed to link the network in all the surgeries and health centers in the area to the main hospital computer system to form a Wide Area Network (WAN).

(i) Name an extra device that will be needed in the surgery to allow the connection to be made.

A router.

(ii) What is the function of this device?

A router directs data packets between networks and connects the local network to the WAN.

(c) Give two advantages of WAN being available.

(i) To the patient:

- Enables faster access to patient records, improving service delivery.

(ii) To the hospital:

- Allows centralized data management, reducing redundancy and improving coordination.

(d) What two extra security problems might arise when the WAN is set up?

- Increased risk of unauthorized access to sensitive medical data.
- Greater exposure to malware or cyberattacks.

(e) Give one advantage of the existence of the worldwide network such as the internet.

It allows global access to information and communication tools, connecting people and resources worldwide.

(f) One disadvantage of worldwide networks is that sometimes it takes a long time to find data. Give one reason for this.

This is often due to an overwhelming volume of data and poorly optimized search algorithms or systems.

12. The part of the spreadsheet given is used to calculate weekly costs at a zoo. It is also used to predict the effects of changing the number of animals.

(a) What cells tell you the number of crocodiles living in the zoo?

Cells A7 and B7.

(b) Which one of the following statements is used to work out the values in the Total Cost per Week column?

(i) $\text{Cost of food for 1 meal} \times \text{Number of meals per week} \times \text{Number of animals}$.

(c) Which other values will be worked out by the spreadsheet?

- The Grand Total for the week (Cell G9).
- The cost per animal for 1 week (Column F).

(d) The cost of food for one zebra meal increases to Tsh 65 and should be reflected in the total food bill. Which cell would you have to change?

Cell C2.

(e) The zoo gives 6 peacocks to another zoo.

(i) Which other cells would you have to change?

Cell B4.

(ii) Which two other cells would change as a result?

Cells F4 and G4.