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: 2015**

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.

1. For each of the following items (i)–(x), choose the most correct answer among the alternatives provided and write its letter beside the item number in your answer booklet.

(i) Which of the following is necessary for running application software?
A. Network
B. Operating system
C. Utility program
D. Graphical user interface
E. System software
Answer: B. Operating system
Reason: An operating system is essential for managing hardware and software resources, enabling application software to run.

(ii) The ALU of a computer responds to the commands coming from:
A. External memory
B. Dynamic memory
C. Primary memory
D. Cache memory
E. Buffer memory
Answer: C. Primary memory
Reason: The ALU interacts with the primary memory to process data and execute commands.

(iii) The electronic pathway where information travels between the CPU and other parts within the motherboard is called:
A. Link bus
B. Instruction bus
C. Data bus
D. Register bus
E. Line bus
Answer: C. Data bus
Reason: The data bus carries data between the CPU, memory, and other components.

(iv) The main board which enables communication between devices in a computer is known as:
A. Monitor
B. Hard board
C. Primary board
D. Motherboard
E. Subboard
Answer: D. Motherboard
Reason: The motherboard connects all components and facilitates communication within the computer.

(v) The fraud which occurs when a fraudster uses a false or fake identity to gain access to an electronic service is called:

A. Rouging
B. Subscription
C. Spoofing
D. Superimposed
E. Calling card
Answer: C. Spoofing
Reason: Spoofing involves impersonating another identity to gain unauthorized access.

(vi) External hardware parts of a computer are known as:
A. Peripherals
B. Ports
C. Components
D. Devices
E. Parts
Answer: A. Peripherals
Reason: Peripherals refer to external devices like printers, keyboards, and mice that connect to the computer.

(vii) A spreadsheet that affects includes labels and formats is called:
A. Graphics
B. Workbook
C. Worksheet
D. Spreadsheet
E. Table
Answer: C. Worksheet
Reason: A worksheet is a single sheet in a workbook where data is input and formatted.

(viii) Which function is used to enter current time in a worksheet cell?
A. Time()
B. Current()
C. Now()
D. Date()
E. Clock()
Answer: C. Now()
Reason: The Now() function returns the current date and time.
(ix) A computer network media that supports large volumes of data transfer is called:
A. Coaxial cable
B. Fibre optical cable
C. Twisted pair cable
D. USB cable
E. Network cable
Answer: B. Fibre optical cable
Reason: Fibre optic cables support high-speed data transfer over long distances.

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(x) Which of the following is the correct order of the units of computer memory in descending order in terms of size?

A. Byte>Kilobyte>Gigabyte>Megabyte

B. Gigabyte>Megabyte>Kilobyte>Byte>Bit

C. Gigabyte>Byte>Kilobyte>Megabyte>Bit

D. Byte>Bit>Kilobyte>Gigabyte>Megabyte

E. Megabyte>Gigabyte>Kilobyte>Bit>Byte

Answer: B. Gigabyte>Megabyte>Kilobyte>Byte>Bit

Reason: Computer memory is classified in descending order as gigabyte, megabyte, kilobyte, byte, and bit.

2. Match the following characteristics of electronic memory devices in List A to their corresponding electronic devices in List B by writing the letter of the correct response beside the item number in your answer booklet.

List A:

(i) A special temporary storage available in the ALU.

(ii) Special memories that are found in appliances or devices.

(iii) Memory devices which are becoming obsolete due to the entry of smaller affordable mass storage.

(iv) Memory devices which are suitable for recording motion pictures.

(v) Storage media that are not located inside the computer.

(vi) Memory storage where contents can be erased and reused but are not changed.

(vii) The type of memory in a virtual memory system.

(viii) Working storage that is used to hold instructions and data needed by the currently running application.

(ix) Non-volatile storage media that employs integrated circuits rather than mechanical or optical technology.

(x) Computer storage where data is written and read from them uses a laser beam.

List B:

A. Removable storage

B. Fixed storage

C. RAM storage

D. Buffer storage

E. Optical storage

F. Cache storage

G. ROM storage

H. Virtual storage

I. Digital Versatile Disk

Solution:

(i) F

(ii) G

(iii) A

(iv) I

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(v) A
(vi) B
(vii) H
(viii) C
(ix) G
(x) E

3.

In the following items (i–x), write T for a True statement and F for a False statement.

(i) Headers and footers are not necessary to identify a document.
F

(ii) Each publication window can include horizontal and vertical rulers.
T

(iii) Timing slide show allows the slide presentation to view automatically.
T

(iv) In a database, tables have records which are columns and fields which are rows.
F

(v) A query is really nothing more than a question you ask to access your data.
T

(vi) PowerPoint presentations can only be viewed by hand out.
F

(vii) Computer chips are made out of silicon.
T

(viii) Database keeps all the information in a file about one person, thing, and event.
T

(ix) Many word processors can convert standard text document into the HTML format.
T

(x) Operating system can be classified into three categories according to user interface.
T

4. (a) Explain the main reason for using BIOS in the computer.
The BIOS (Basic Input Output System) initializes and tests the hardware components of a computer during the booting process. It also provides a runtime interface for operating systems to interact with hardware devices.

(b) Mention two types of buses that affect the speed of a computer. Explain the function of each type.

1. Data Bus
Transfers data between the processor, memory, and peripherals. A wider data bus increases the amount of data transferred at a time, improving speed.

2. Address Bus
Carries the address of memory locations where data is to be read or written, ensuring accurate communication between devices.

(c) Differentiate the fourth generation from fifth generation computers.

1. Fourth Generation: These computers use microprocessors for processing, which are compact and efficient. Examples include personal computers.
2. Fifth Generation: Focuses on artificial intelligence and parallel processing, featuring advanced technologies like robotics and expert systems.

5. (a) Give four disadvantages of traditional databases.

  ➢ Limited Scalability: Cannot handle large volumes of data efficiently.
  ➢ Lack of Flexibility: Difficult to adapt to changing requirements or queries.
  ➢ Data Redundancy: High duplication of data due to manual input methods.
  ➢ Time-Consuming: Requires extensive time for data entry, retrieval, and management.

(b) A mail order company selling plastic equipment keeps details of its stock on a database.

(i) Which field should be used as the key field?
Code_Num

(ii) Which Code_Num data will be listed if the following search condition is applied?
(Speakers power>400) AND (No of CDs>=4)
Code_Num: 13416, 14005

(iii) Write down a search condition to find all the equipment which is silver-colored or has a price greater than 500,000/=
(Colour="Silver") OR (Price>500000)

(iv) Write down the order of the Code_Num after the price (Tsh) field has been sorted in ascending order.

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6. (a) Describe three applications of the Internet in the area of education.

➤ Online Learning Platforms
  Students and educators use platforms like Coursera and Khan Academy for accessing lectures, tutorials, and course materials.

➤ Research and Information Gathering
  The Internet provides access to a wide range of scholarly articles, e-books, and research papers, which are invaluable for academic purposes.

➤ Communication and Collaboration
  Students and teachers communicate through emails, forums, and collaborative tools like Google Classroom and Zoom.

(b) Mention four components of the computer.

➤ Central Processing Unit (CPU)
➤ Memory (RAM/ROM)
➤ Input Devices (keyboard, mouse)
➤ Output Devices (monitor, printer)

(c) Differentiate system software from application software.

➤ System Software
  Software that manages hardware and provides an environment for application software to run. Examples include operating systems like Windows and Linux.

➤ Application Software
  Software designed for specific tasks, such as Microsoft Word for word processing or Photoshop for image editing.

(d) Give four functions of an operating system.

➤ Managing hardware resources like CPU, memory, and devices.
➤ Providing a user interface for interaction.
➤ Ensuring security and access control.
➤ File management, including storage and retrieval.

7. (a) Differentiate bound transmission media from unbound transmission media by giving three examples for each category.

➢ Bound Transmission Media
These involve physical mediums:
  - Twisted Pair Cable
  - Coaxial Cable
  - Fiber Optic Cable

➢ Unbound Transmission Media
These involve wireless transmission:
  - Radio Waves
  - Microwaves
  - Infrared

(b) Explain why LANs are characterized by comparatively high speed than WANs.
LANs cover a small geographical area, allowing for faster communication due to lower latency and higher data transfer rates. WANs, in contrast, span larger areas and face delays from multiple networks.

8. (a) Explain three components of an electronic spreadsheet.

➢ Cells
The basic unit where data is entered. Each cell is identified by a unique address (e.g., A1).

➢ Formulas
Used to perform calculations, such as addition, subtraction, or finding averages.

➢ Charts
Allow for the graphical representation of data, making analysis easier.

(b) Outline three factors to be considered when choosing a word processor.

➢ Compatibility
It should be compatible with the operating system.

➢ Features
Should have essential tools like spell check, templates, and formatting.

➢ Ease of Use
The interface should be user-friendly and intuitive.

(c) Explain how you can protect a document from unauthorized opening or altering.

  ➢ Use password protection to restrict access.
  ➢ Encrypt the file to ensure data security.

9. (a) Why do you think the content of the web page needs to be written between the <body> and </body> tags?
The content is written between the <body> tags because it ensures that the text and elements are displayed within the main section of the web page visible to users.

(b) Write the output of the following HTML codes:

Codes:
```
<html>
<body>
Congratulations for opting computer studies
<br>
<ol>
<li> Age
<li> Telephone
<li> Address
</ol>
My favourable subjects are
<ul type="square">
<li> Computer studies
<li> Mathematics and
<li> English <br>
</ul>
<input type="submit" name="submit" value="Submit">
<input type="submit" name="submit" value="Exit">
</body>
</html>
```

Output:

Congratulations for opting computer studies
1. Age
2. Telephone
3. Address

My favourable subjects are
- Computer studies

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- Mathematics and
- English

[Submit Button] [Exit Button]

10. Describe four computerized banking services available today.

➢ Automated Teller Machines (ATMs)
Allow customers to withdraw cash, deposit funds, or check balances.

➢ Internet Banking
Enables customers to perform transactions online, including fund transfers and bill payments.

➢ Mobile Banking
Provides banking services through mobile applications, offering convenience on the go.

➢ Electronic Funds Transfer (EFT)
Facilitates the transfer of funds electronically between accounts without physical interaction.

10. Describe four computerized banking services available today.

➢ Automated Teller Machines (ATMs)
These are self-service machines installed by banks to allow customers to perform basic banking transactions such as withdrawing cash, depositing money, checking account balances, and printing account statements. ATMs operate 24/7, providing convenience and accessibility to customers.

➢ Internet Banking
This service allows customers to access their bank accounts through secure websites. With internet banking, customers can transfer funds, pay utility bills, apply for loans, and monitor their account activities from anywhere with internet access, reducing the need for physical visits to the bank.

➢ Mobile Banking
This service uses mobile phone applications to provide banking services. Customers can perform transactions such as transferring funds, paying bills, and recharging mobile airtime. Mobile banking offers flexibility, allowing customers to manage their finances on the go.

➢ Electronic Funds Transfer (EFT)
This involves transferring money electronically between accounts, either within the same bank or across different banks. EFT is commonly used for payroll processing, supplier payments, and utility bill payments, eliminating the need for physical checks.

11. Explain four factors that affect the speed of Internet connection.

➢ Bandwidth
The capacity of a network connection, measured in Mbps or Gbps, determines how much data can be transmitted over the internet. Higher bandwidth results in faster data transfer speeds.

➢ Network Congestion
When too many users access the internet simultaneously, especially during peak hours, the network can become congested, slowing down connection speeds.

➢ Distance from ISP Servers
The farther the user is from the Internet Service Provider's servers, the slower the connection due to increased latency.

➢ Type of Connection
The technology used for internet access, such as fiber optics, DSL, satellite, or mobile data, greatly affects speed. Fiber optic connections typically offer the fastest speeds compared to other technologies.

12. Describe four application areas of multimedia in the society.

➢ Education
Multimedia is used in e-learning platforms to provide interactive content, such as video tutorials, animations, and simulations, making learning more engaging and effective.

➢ Entertainment
It plays a significant role in movies, video games, and music production. For example, 3D animations and visual effects enhance the quality of movies and games.

➢ Advertising
Companies use multimedia to create compelling advertisements that combine text, images, audio, and video to attract and engage potential customers.

➢ Healthcare
Multimedia is utilized in telemedicine to facilitate remote consultations and medical training. Doctors use 3D imaging and animations to explain complex procedures to patients.