

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: 2013

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.

maktaba.tetea.org



(i) A database file that contains a single data table is known as:

- A. Single file
- B. Sorting file
- C. Flat file
- D. Double file
- E. Data file

Answer: C. Flat file

Reason: A flat file contains data in a single table, which is simple and not interlinked with other tables, unlike relational databases.

(ii) The type of printers which use a striking mechanism when printing characters is:

- A. Non-impact
- B. Impact
- C. Thermal
- D. Inkjet
- E. Laser

Answer: B. Impact

Reason: Impact printers, such as dot-matrix printers, use mechanical impact to transfer ink onto paper.

(iii) The most appropriate type of indentation for paragraphing documents in word processing is:

- A. Full indentation
- B. Last indentation
- C. Hanging indentation
- D. Left indentation
- E. Right indentation

Answer: C. Hanging indentation

Reason: Hanging indentation is used for organizing paragraphs, especially in references or bibliographies, where the first line is aligned differently from the rest.

(iv) A formula required to find the sum of only those cells that have a value greater than 50 in the range of F7:H20 must be written as:

- A. =SUMIF(F7:H20,">50")
- B. =SUMIF(F7:H20,"-50")
- C. =SUMIF(F7:H20,"*50")
- D. =SUMIF(F7:H20,".50")
- E. =SUMIF(F7:H20,">50",)

Answer: A. =SUMIF(F7:H20,">50")

Reason: The SUMIF function is used to sum values in a range based on a specified condition, in this case, values greater than 50.

(v) When integrating Word and Excel, word is usually acting as the:

- A. Server
- B. Client

- C. Host
- D. Network
- E. Domain

Answer: B. Client

Reason: Word acts as a client when integrating with Excel by accessing and embedding data or charts created in Excel.

(vi) The major function of secondary storage devices is to keep data for:

- A. Future application
- B. Printing
- C. Formatting
- D. Processing
- E. Output

Answer: A. Future application

Reason: Secondary storage devices, such as hard drives, store data permanently for future retrieval and use.

(vii) Which of the following printer is commonly used for large publishing?

- A. Inkjet printer
- B. Dot matrix printer
- C. Laser printer
- D. Thermal printer
- E. Line printer

Answer: E. Line printer

Reason: Line printers are designed for high-speed and large-volume printing, making them suitable for publishing.

(viii) One of the following distracters is NOT the option of database security:

- A. By user-level security
- B. Data encryption
- C. Use of password
- D. Following privacy policy
- E. Password encryption

Answer: D. Following privacy policy

Reason: Following privacy policy is a procedural guideline, not a direct technical method of securing a database.

(ix) The term analog data represents:

- A. Data that stops
- B. Large data
- C. Discrete data
- D. Continuous data
- E. Small data

Answer: D. Continuous data

Reason: Analog data is represented in a continuous form, unlike discrete digital data.

(x) Desktop publishing software can be classified into two broad categories which are:

- A. Graphic-based and Layout-based
- B. Layout-based and Design-based
- C. Graphic-based and Format-based
- D. Format-based and Design-based
- E. Graphic-based and Design-based

Answer: E. Graphic-based and Design-based

Reason: Desktop publishing software focuses on creating graphic-based layouts and design-based documents such as brochures and magazines.

2. Match the following features of LAN topology in List A to their corresponding type of network topology in List B by writing the letter of the correct option beside the item number.

List A

- (i) Deals with the way data passes from one device to the next device of the network.
- (ii) Computers listen to the network media and can send data when none of the others is sending.
- (iii) Refers to the arrangement of components on the network.
- (iv) Consists typically of personal computers each connected to the central computer or switch.
- (v) All devices are connected to a central cable called backbone.
- (vi) Consists of one continuous length of cable (trunk) and a terminating resistor at each end.
- (vii) A circular layout of point-to-point links.
- (viii) Each network device has a dedicated point-to-point link to the central hub.
- (ix) Every device connected to all other devices.
- (x) All nodes have equal access to the trunk.

List B

- A. Bus topology
- B. Ring topology
- C. Token ring topology
- D. Ethernet topology
- E. Mesh topology
- F. Star topology
- G. Physical topology
- H. Logical topology
- I. Internet topology
- J. Network topology
- K. Hub topology

Solution:

- (i) B
- (ii) C

- (iii) J
- (iv) F
- (v) A
- (vi) A
- (vii) B
- (viii) F
- (ix) E
- (x) A

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

- (i) Horns, journal, and whistle are traditional ways of disseminating information. T
- (ii) Fifth generation computers are characterized by artificial intelligence. T
- (iii) UPS is the abbreviation of Universal Primary Source of power. F
- (iv) Windows protection error is displayed during startup after the GUI is loaded. F
- (v) Webpage can be created only by using special HTML program. F
- (vi) ICT destroys culture in developing countries because it helps the people to send E-mail regularly. F
- (vii) Monitors, LCD projector, and speakers are examples of softcopy output devices. T
- (viii) Data integrity is measured in terms of accuracy, timeliness, and relevance of data. T
- (ix) Supercomputers are commonly used in training and learning institutions. F
- (x) Scripting languages need a compiler to develop or add functionalities on web pages. F

4. (a) Define the term "search engine."

A search engine is a software system designed to perform web searches, enabling users to find information on the internet by entering keywords or queries.

(b) Describe the top two internet search engines.

1. Google: The most widely used search engine, known for its advanced algorithms, speed, and user-friendly interface.
2. Bing: A search engine by Microsoft, offering visual search features and integration with other Microsoft services.

(c) Give four reasons why email is more preferred than normal letters.

- Speed: Emails are delivered instantly, unlike physical letters.
- Cost-effectiveness: No postage costs are involved in sending emails.
- Accessibility: Emails can be accessed from anywhere with an internet connection.
- Eco-friendliness: Reduces the use of paper, making it an environmentally friendly option.

5. (a) What is an operating system?

An operating system is a software program that manages computer hardware and software resources, providing services for computer programs and enabling the user to interact with the system.

(b) Outline the major three functions of an operating system.

- Process management: Manages the execution of processes and multitasking.
- Memory management: Allocates and manages memory for programs and processes.
- Device management: Controls and coordinates input and output devices connected to the computer.

(c) Explain why a computer requires a modem to transmit data across distant networks.

A modem converts digital signals from a computer into analog signals for transmission over telephone lines and vice versa, enabling communication between distant networks.

6.

(a) State any four types of word processor applications.

- Microsoft Word
- Google Docs
- LibreOffice Writer
- Apple Pages

(b) Assume it is sports day at your school where there are four classes, and each class has three teams: Junior, Middle, and Senior.

(i) Give an illustration on how the spreadsheet can be used to create an electronic score sheet for the teams. A spreadsheet can be used to create a table with rows for team names and columns for game scores. Each cell can record the scores of individual games, and formulas can calculate total and average scores for each team.

(ii) Describe how the spreadsheet can be used to find the total goals of each team.

The SUM function can be applied to the rows corresponding to each team to calculate their total goals. For example, =SUM(B2:G2) can sum the scores from columns B to G for a team in row 2.

7. Explain with examples how the desktop publishing software gives a person designing a document more control on:

(a). Graphic design: Allows the addition of images, shapes, and colors for visually appealing layouts. For example, adding a logo to a brochure.

(b). Page layout design: Enables precise positioning of text and images on a page. For example, creating a magazine spread with columns.

(c). Printing: Offers options to adjust print quality, paper size, and layout. For example, printing double-sided flyers.

9.

(a) Explain the term computer crime in relation to computer usage.

Computer crime refers to any illegal activity that involves the use of computers or networks to commit an offense. Examples include hacking into systems, spreading malware, stealing sensitive information, and engaging in online fraud. These crimes often exploit vulnerabilities in technology to harm individuals, organizations, or governments.

(b) Describe three ways of preventing Information and Communication Technology (ICT) crimes.

1. Use of Antivirus Software: Installing and updating antivirus software regularly helps detect and remove malware that cybercriminals may use to compromise systems.
2. Data Encryption: Encrypting sensitive data ensures that it is only accessible to authorized users, reducing the risk of interception during transmission.
3. Employee Training: Educating employees on safe cybersecurity practices, such as recognizing phishing attempts, strengthens overall security.

(c) Describe three major characteristics of third-generation computers.

1. Use of Integrated Circuits (ICs): Replacing transistors with ICs significantly reduced the size of computers, making them more compact.
2. Introduction of Operating Systems: Third-generation computers supported operating systems, enabling better multitasking and management of resources.
3. Improved Speed and Reliability: The use of ICs increased processing speed and reduced the likelihood of hardware failures.

10.

(a) What is a Database Management System (DBMS)?

A DBMS is a software system that provides an interface for users to create, manage, and interact with databases. It ensures data consistency, security, and easy access. Examples include MySQL, Oracle, and Microsoft Access.

(b) A property owner uses a database to store data about houses he sells. The table below shows part of the database:

Reference Number	Air Conditioner	Garden	Number of Bedroom	Price
N123	Y	N	3	\$1,200
N135	N	Y	4	\$1,000
N457	N	Y	2	\$670
N567	Y	N	3	\$1,500

N341	N	N	2	\$500
------	---	---	---	-------

(i) The records shown in the table above are to be sorted in ascending order of price. What will be the reference number of the first record in the database after it has been sorted?

Answer: N341

Reason: When sorted by ascending price, the record with the lowest price (\$500) will appear first, which corresponds to reference number N341.

(ii) Assume the records above have been sorted in descending order of reference number. What will be the room status, price, and the number of bedrooms of the last record?

Answer: Room Status: N (No air conditioner), Price: \$1,000, Number of Bedrooms: 4

(iii) Give the names of the fields that contain Boolean data type.

Answer: Air Conditioner, Garden

Reason: These fields store binary data (Yes or No), making them Boolean in nature.

(iv) Identify the field type of the reference number field.

Answer: Alphanumeric

Reason: Reference numbers contain both letters and numbers, categorizing them as alphanumeric fields.

(v) Give two validation checks that could be carried out on the reference number field.

- Format Check: Ensures the reference number follows a predefined structure, such as starting with "N" followed by digits.
- Uniqueness Check: Confirms that no two records have the same reference number, ensuring uniqueness.

(vi) Which field should be the primary key of the database table?

Answer: Reference Number

Reason: The reference number uniquely identifies each record in the table, making it suitable as the primary key.

11. Explain four key elements of an effective website.

- User-Friendly Navigation: The website should have a clear layout with intuitive menus and links, ensuring users can easily find the information they need. For example, a clear search bar enhances navigation.
- Responsive Design: The website should be accessible on multiple devices, including smartphones and tablets, without compromising its usability or appearance.
- High-Quality Content: Content should be relevant, accurate, and engaging to meet the needs of the target audience. For instance, blogs on an educational site should provide valuable learning resources.
- Fast Loading Speed: A website should load quickly to retain user attention and avoid frustration. Tools like image compression can optimize loading times.

12. Why electronic word processors are more preferred than manual typewriters? Describe by giving four reasons.

- Ease of Editing: Word processors allow users to edit text, such as deleting, inserting, or rearranging content, without the need to retype the entire document. For example, correcting a typo takes seconds.
- Formatting Options: Users can easily change font styles, sizes, and alignments, enhancing the document's appearance, which is not possible with typewriters.
- Error Correction: Built-in spell checkers and grammar tools help detect and correct errors, improving accuracy.
- Storage and Retrieval: Documents created on word processors can be saved for future use and shared electronically, unlike typewritten pages that are limited to physical copies.