

**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)

**Duration: 3 Hours**

**SOLUTIONS**

**Year: 2025**

**Instructions**

1. This paper consists of sections A, B and C with a total of **eleven (11)** questions.
2. Answer **all** questions in section A and B and **two (2)** questions from section C.
3. Section A carries **sixteen (16)** marks, section B **fifty four (54)** marks and section C **thirty (30)** marks.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s)

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## SECTION A (16 Marks)

Answer all questions in this section.

1. For each of the items (i) to (x), choose the correct answer from the given alternatives and write its letter beside the item number.

(i) Which menu option will you use to display the ruler in Microsoft Word?

- A. Home
- B. Insert
- C. View
- D. Review

Correct answer: C. View

The ruler in Microsoft Word is found under the View menu. This menu controls elements related to how the document appears on the screen, including rulers, gridlines, and zoom options.

(ii) Which cybercrime did the criminal commit when tapping a communication channel to get information secretly?

- A. Fraud
- B. Identity theft
- C. Eavesdropping
- D. Phishing

Correct answer: C. Eavesdropping

Eavesdropping refers to secretly listening to or intercepting communication without authorization. Tapping communication channels to obtain information fits this definition.

(iii) What type of computer has a large storage capacity and allows hundreds of customers to work on the same data at the same time?

- A. Supercomputer
- B. Mainframe computer
- C. Personal computer
- D. Minicomputer

Correct answer: B. Mainframe computer

Mainframe computers are designed to support many users simultaneously. They have large storage capacity and are commonly used in banks, universities, and large organizations.

(iv) How can you differentiate a flat file database from a relational database?

- A. Flat file database imports data from other software while relational database does not
- B. Flat file database contains a single table but relational database includes many tables
- C. Flat file database contains many tables while relational database includes a single table
- D. Flat file database offers stronger reporting than relational database

Correct answer: B

A flat file database stores all data in one table, which limits flexibility. A relational database uses multiple related tables, making it more efficient and organized for large datasets.

(v) What will be the output after executing the following HTML codes?

- A. Tanzania
- B. Tanzania

C. Home

D. url

Correct answer: B. Tanzania

The anchor tag displays the text between the opening and closing tags on the webpage. The word “Tanzania” appears as a clickable link.

(vi) Which type of text alignment would you use to align texts evenly along the left and right margins in a Word document?

A. Left alignment

B. Center alignment

C. Right alignment

D. Justified alignment

Correct answer: D. Justified alignment

Justified alignment ensures that text is evenly aligned on both the left and right margins, giving documents a clean and professional appearance.

(vii) Which one are the correct procedures for adding a chart in one of the slides in PowerPoint?

A. Insert > Chart > Picture

B. Picture > Chart > Insert

C. Insert > Picture > Chart

D. Picture > Insert > Chart

Correct answer: C. Insert > Picture > Chart

Charts in PowerPoint are added through the Insert menu. This allows users to select and insert different types of charts into slides.

(viii) Which type of chart will be most appropriate for comparing performance of sales of two items?

- A. Pie chart
- B. Column chart
- C. Bubble chart
- D. Surface chart

Correct answer: B. Column chart

Column charts are effective for comparing quantities between different items because the height of the columns makes differences easy to see.

(ix) How would you protect the computer from malware attacks?

- A. By opening email attachments from unknown sources
- B. By visiting any websites in the World Wide Web
- C. By switching off the computer regularly
- D. By scanning removable devices before opening them

Correct answer: D

Scanning removable devices such as flash disks helps detect malware before it spreads into the computer system.

(x) Which type of multimedia is used in computer and smartphone games?

- A. Linear multimedia
- B. Non linear multimedia
- C. Analog multimedia
- D. Visual multimedia

Correct answer: B. Non linear multimedia

Games allow users to interact and make choices that affect outcomes. This interaction makes them non linear multimedia.

2. Match the functions of field properties in List A with their corresponding names of the field properties from Microsoft Access in List B.

List A

- (i) It allows the user to set the type of numbers to be entered in a field.
- (ii) It determines if an entry must be made in the field before proceeding to the next field or record.
- (iii) It restricts the values to be entered in a field.
- (iv) It formats automatically the field entry into a specific pattern.
- (v) It allows a message to be displayed once the validation rule is violated.
- (vi) It describes the label for the field to be used in a table or form view.

List B

- A. Validation Rule
- B. Indexed
- C. Default Value
- D. Caption
- E. Validation Text
- F. Field Size
- G. Input Mask
- H. Required

**Answers.**

- (i) F (ii) H (iii) A (iv) G (v) E (vi) D

## **SECTION B (54 Marks)**

Answer all questions in this section.

3. (a) Why is it advised to close windows and doors in a computer laboratory? Give four reasons.

One reason is to prevent dust from entering the laboratory. Dust can accumulate inside computer components and cause overheating or damage.

Another reason is to protect computers from moisture. Rainwater and humidity can cause short circuits and damage electronic parts.

Closing windows and doors also improves security. It reduces the risk of theft or unauthorized access to computer equipment.

It also helps maintain a controlled temperature. Computers perform better in stable temperature conditions.

- (b) What are the two effects of opening windows and doors on computers in a laboratory?

Opening windows allows dust to enter the laboratory, which can damage internal components of computers.

It may also allow moisture to enter, leading to rusting, electrical faults, or system failure.

4. (a) Why is it prohibited to use liquid fire extinguishers in the computer laboratory?

Liquid fire extinguishers conduct electricity and can damage computer equipment. They also increase the risk of electric shock to users.

(b) Explain two health problems a person may suffer when using ICT devices for a long time.

One health problem is eye strain. Continuous exposure to screens causes tired eyes, headaches, and blurred vision due to excessive screen brightness.

Another problem is back pain. Sitting for long hours with poor posture puts pressure on the spine and muscles.

(c) Explain two protective ways for each problem explained in part (b).

To prevent eye strain, users should take regular breaks and adjust screen brightness to a comfortable level.

To reduce back pain, users should use ergonomic chairs and maintain proper sitting posture.

5. (a) Why network administrators in organizations prefer to install Linux operating system in their server computers?

One reason is stability. Linux servers rarely crash, making them reliable for continuous operation.

Another reason is security. Linux is less vulnerable to viruses and malware compared to other operating systems.

Administrators also prefer Linux because it supports multiple users efficiently.

(b) What two possible challenges the organization may face when using Linux operating system?

One challenge is limited availability of some commercial software designed mainly for other operating systems.

Another challenge is the need for skilled personnel to manage and maintain Linux systems.

(c) Explain two functions of the Linux operating system used in organization servers.

Linux manages hardware resources efficiently, ensuring optimal use of memory and processing power.

It also controls user access and security, protecting organizational data.

6. Form Six students plan to capture a video in their graduation ceremony but lack knowledge of video processing.

(a) Explain five procedures you would use to accomplish the task.

The first procedure is importing video files into video editing software.

The second procedure is trimming unwanted sections to remove errors.

The third procedure is arranging video clips in the correct sequence.

The fourth procedure is adding transitions, text, and effects to enhance quality.

The final procedure is exporting the edited video to a flash disk.

(b) Explain two types of compression method you may use.

Lossy compression reduces file size by removing some data, slightly affecting quality.

Lossless compression reduces file size without losing any data.

7. You have been assigned to prepare the students' magazine and submit it through email.

(a) Why did the teacher opt for this way of communication? Give three reasons.

Email is fast and allows instant delivery of information.

It is cost effective because it does not require printing or physical transport.

It allows sending the magazine to many recipients at the same time.

(b) Explain the function of each field appeared during composing an email.

The To field contains the main recipient of the email.

The CC field sends a copy to additional recipients who are allowed to see others.

The BCC field sends copies without revealing recipients' addresses.

8. The Ministry of Health uses television and radio broadcasting to disseminate information about pandemic diseases.

(a) Which type of information dissemination method is used by the Ministry of Health?

The method used is mass media communication.

(b) Why does the Ministry use such means of disseminating information? Give four reasons.

Mass media reaches a large population at the same time.

Information is delivered quickly during emergencies.

It reaches both literate and illiterate people.

It covers wide geographical areas.

(c) What two challenges would the Ministry face by using such method?

One challenge is high operational costs.

Another challenge is limited feedback from the audience.

## SECTION C

Answer two (2) questions from this section.

9. Why do most newspaper developers prefer to use desktop publishing programs than other programs? Explain by giving five points.

Their ability to produce professional layouts. Desktop publishing software such as Adobe InDesign and Microsoft Publisher allows precise control over text, images, columns, margins, and spacing, which is essential for producing attractive and readable newspapers.

Flexibility in text and image editing. Desktop publishing programs allow developers to easily edit text, resize images, adjust fonts, and apply styles without affecting the overall layout, making corrections and updates faster and more efficient.

Desktop publishing programs also support high quality printing. They are designed to work with printing standards such as color separation and resolution control, ensuring that newspapers are printed clearly and professionally.

Time efficiency. These programs provide ready made templates and tools that speed up the design process, allowing newspapers to be produced within tight deadlines.

Lastly, desktop publishing programs support integration of graphics. Developers can easily import photographs, charts, and illustrations, enhancing the visual appeal and communication effectiveness of newspapers.

10. Recently, most organizations opt to use computer technology instead of human beings in their various operations. Using five points, explain the reasons for their choices.

One major reason organizations use computer technology is

Speed. Computers can process large amounts of data much faster than humans, enabling organizations to complete tasks quickly and meet operational deadlines.

Accuracy. Computers reduce errors in calculations, data processing, and record keeping, leading to more reliable results compared to manual work.

Cost reduction is also a reason for adopting computer technology. Although initial investment may be high, computers reduce long term costs by minimizing labor expenses and increasing productivity.

Computers also allow efficient data storage and retrieval. Large volumes of information can be stored digitally and accessed easily whenever needed, improving decision making and organizational efficiency.

Finally, computer technology enables automation. Routine and repetitive tasks can be automated, allowing human workers to focus on more complex and creative activities.

11. Explain five advantages of using computers and other devices which are connected to the network in an organization.

One advantage of using networked computers is

Improved communication. Employees can share information quickly through emails, messaging systems, and shared platforms, enhancing coordination within the organization.

Resource sharing. Devices connected to a network can share printers, files, and internet connections, reducing costs and improving efficiency.

Networked computers also improve data management. Centralized databases allow secure storage, easy updating, and controlled access to organizational information.

Enhanced collaboration. Employees can work on shared documents and projects simultaneously, even from different locations, increasing teamwork and productivity.

Support better security and backup. Organizations can implement centralized security controls and regular data backups, protecting information from loss or unauthorized access.

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1. (i) Which object would you use to add a calculated field in the Ms Access database?

- A. Table
- B. Macros
- C. Query
- D. Report
- E. Form

Correct answer: C. Query

Reason: Calculated fields are added in queries where expressions are used to compute values from existing fields.

(ii) The following are date and time functions used in spreadsheet except;

- A. TODAY()
- B. NOW()
- C. DATE()
- D. HOUR()
- E. MIN()

Correct answer: E. MIN()

Reason: MIN() is not a date or time function, it is a statistical function used to return the smallest number in a range.

(iii) What type of topology is appropriate for combining star and bus topology?

- A. Hybrid topology
- B. Tree topology
- C. Mesh topology
- D. Mixed topology
- E. Ring topology

Correct answer: B. Tree topology

Reason: Tree topology is a combination of bus and star topology.

(iv) You have been given analog and digital data to process for immediate use. Which type of computer will you opt for the effectiveness and efficiency of the task?

- A. Minicomputer

- B. Microcomputer
- C. Supercomputer
- D. Hybrid computer
- E. Mainframe computer

Correct answer: D. Hybrid computer

Reason: A hybrid computer can process both analog and digital data effectively.

(v) A principal of a certain education college wants to establish an e-mail address for all staff members in order to have effective and secure communication. Which type of email address would you suggest to be opted?

- A. Commercial email address
- B. Organisational email address
- C. Yahoo email address
- D. Academic email address
- E. Google email address

Correct answer: B. Organisational email address

Reason: An organizational email address provides security, central management, and professionalism for institutional communication.

(vi) Which keyboard shortcut would you use to insert a page break in a word document?

- A. Pressing Alt + Enter
- B. Pressing Esc + Enter
- C. Pressing Ctrl + Enter
- D. Pressing Fn + Enter
- E. Pressing Tab + Enter

Correct answer: C. Pressing Ctrl + Enter

Reason: In Microsoft Word, pressing Ctrl + Enter inserts a page break.

(vii) Most television users use remote to regulate volume and channels. What type of multimedia application does the remote belong?

- A. Inventive multimedia
- B. Integral multimedia

- C. Input multimedia
- D. Interactive multimedia
- E. Interference multimedia

Correct answer: D. Interactive multimedia

Reason: Remote control is an example of interactive multimedia where users interact with the system.

(viii) How can you arrange data, information and knowledge according to their relationship?

- A. Data → Information → Knowledge
- B. Knowledge → Data → Information
- C. Data → Knowledge → Information
- D. Information → Knowledge → Data
- E. Information → Data → Knowledge

Correct answer: A. Data → Information → Knowledge

Reason: Raw data is processed into information, and with experience and interpretation, it becomes knowledge.

(ix) Halima's computer displays a message "Memory not found" during booting process. Which one is the source of that fault?

- A. Loose or unavailability of RAM
- B. Insufficient memory space
- C. Computer Virus Infection
- D. The hard disk was corrupted
- E. Loose or unavailability of ROM

Correct answer: A. Loose or unavailability of RAM

Reason: During booting, if RAM is unavailable or loose, the computer will not detect memory leading to such an error.

(x) What will you do to view a presentation from multiple presentations prepared using Microsoft PowerPoint?

- A. Click view tab then click cascade and select the presentation.
- B. Click view tab then click new window and select the presentation.
- C. Click view tab then click arrange all and select the presentation.

- D. Click the switch button on the task pane and select presentations.
- E. Click view tab then switch windows button and select the presentation.

Correct answer: E. Click view tab then switch windows button and select the presentation

Reason: The switch windows option under the view tab allows users to toggle between multiple open presentations.

2. Match the function of html tags in List A with the corresponding tags in List B by writing the letter of the correct answer beside the item number in the answer booklet provided.

List A

- (i) Tags for emphasizing the header of the table in a webpage.
- (ii) Tags for creating a list of bullet in a webpage.
- (iii) Tags for creating a link in a webpage.
- (iv) Tags for highlighting the main title of the webpage.
- (v) Tags for inserting a picture in a webpage.
- (vi) Tags for enclosing the elements for visibility to the webpage visitors.

- A. <img src="">
- B. <h1> </h1>
- C. <body> </body>
- D. <th> </th>
- E. <b> </b>
- F. <ul> </ul>
- G. <hr> </hr>
- H. <ol> </ol>
- I. <a href=""> </a>

Correct answers: (i) D, (ii) F, (iii) I, (iv) B, (v) A, (vi) C

3. The headmaster of a certain secondary school complained that his computer is not working properly. The investigation showed that the computer was infected by malware.
- (a) Explain three warning signs that led the investigator to confirm the source of the problem.

One warning sign is slow performance of the computer, where programs take unusually long to open or respond.

Another warning sign is frequent system crashes or automatic restarts without reason.

A third warning sign is the appearance of strange pop-up messages or unknown programs running in the background.

(b) Identify three causes of the problem identified by an investigator.

One cause is downloading and installing software from untrusted sources, which may contain malware.

Another cause is failure to update antivirus software, leaving the computer vulnerable to new threats.

A third cause is frequent use of infected storage devices like flash disks without scanning them.

(c) What should be done by the headmaster to prevent the problem in future? Give three points.

The headmaster should install and update antivirus software regularly to detect and remove malware.

He should educate users on safe browsing habits and discourage downloading files from unsafe websites.

He should enforce regular data backups and system updates to protect against data loss and vulnerabilities.

4. (a) You have been assigned by the coordinator of the Open University of Tanzania to propose the type of computer network that connects its branches all over the country. What type of network would you suggest?

The type of network to suggest is Wide Area Network (WAN).

(b) Differentiate router from switch as used in computer network.

A router is a device that connects multiple networks together and directs data packets between them, often providing internet connectivity.

A switch is a device that connects multiple computers within the same network and forwards data to the correct destination device using MAC addresses.

(c) “Deploying Fiber Optical cable for computer network in recent technology is inevitable”. Justify this statement by giving three reasons.

Fiber optic cables support very high-speed data transfer, making them more efficient for modern demands.

They are less prone to electromagnetic interference compared to copper cables, ensuring stable communication.

They can carry data over very long distances without significant loss of signal strength.

5. Employees of a certain company spend most of their time communicating with customers through computer system and mobile phones. This extensive use of electronic devices raises the health risk to them.

(a) Identify three possible health risks which likely to be faced by these employees.

One possible health risk is eye strain due to prolonged staring at computer or phone screens.

Another risk is back and neck pain caused by poor sitting posture while using computers.

A third risk is stress and fatigue caused by overuse of digital devices and constant connectivity.

(b) Explain three ways to minimize the identified risks in 5(a).

Employees should take regular breaks away from the screen to reduce eye strain.

They should use ergonomic chairs and maintain proper sitting posture to prevent back and neck pain.

They should set time limits for device use and practice stress management techniques like exercises or relaxation.

6. The National Bureau of Statistics (NBS) of Tanzania used manual system to conduct national census. During 2022 national census, NBS practiced computerized system installed in tablets for data collection.

(a) Explain two advantages the bureau would have been experienced for using the new approach.

The computerized system enabled faster collection and processing of census data.

It also reduced human errors and improved accuracy compared to manual data collection.

(b) What challenges were likely to be faced by the bureau of statistics when using new approach. Give three challenges.

One challenge is system breakdown or software failure during the census exercise.

Another challenge is insufficient technical skills among enumerators to operate tablets.

A third challenge is network problems in remote areas affecting data transmission.

(c) Suggest two measures that could have been used by the Bureau of Statistics to enforce data security.

They could use data encryption to protect sensitive census information.

They could also implement user authentication such as passwords or biometrics to limit access to the system.

7. Which steps are to be followed when:

(a) Inserting the comment to a slide.

First, open the slide where you want to insert a comment. Then, go to the “Review” tab, select “New Comment”, and type the comment in the box provided.

(b) Printing six slides in a single page.

First, go to the “File” menu and select “Print”. Then under “Settings”, choose “Handouts” and select 6 slides per page before clicking “Print”.

(c) Starting a slide show in power point presentation.

First, click on the “Slide Show” tab. Then, select “From Beginning” or press the F5 key to start the presentation.

8. The ICS Teacher at Kampaga Secondary School assigned you to prepare the following worksheet which shows the second term results of Form Four students.

(a) Which function would you use to calculate the Average of the student marks which are integers?

The function is =AVERAGE().

(b) Suggest the function used to assign the grades for each student.

The function is

=IF(AVERAGE>=75,"A",IF(AVERAGE>=65,"B",IF(AVERAGE>=45,"C",IF(AVERAGE>=30,"D","F")))).

(c) Which function would you use to rank the students' positions?

The function is =RANK(AVERAGE,AVERAGE\_RANGE).

(d) Which steps would you follow to remove row 10 from the worksheet?

First, select row 10 by clicking on its row number. Then, right-click and choose "Delete" from the menu to remove it from the worksheet.

9. "The use of Multimedia Technology in Tanzania has great impacts in social-economic development".

Justify this statement by giving four points.

Multimedia technology supports education by enabling e-learning platforms, interactive teaching methods, and access to digital libraries, which improve learning outcomes.

It enhances communication through social media, video conferencing, and instant messaging, which reduce costs and improve business efficiency.

It promotes entertainment industries such as film, music, and gaming, creating employment opportunities and contributing to the economy.

It improves service delivery in sectors like health and banking, where multimedia is used for telemedicine, online banking, and customer service.

10. You were asked by a certain office to advise the operating system to be purchased for their newly bought computers. Describe six specifications that will guide you to make decision.

The operating system should have high compatibility with the available hardware to ensure smooth functioning.

It should support multitasking and multiprocessing to allow users to run several programs at the same time.

It should provide strong security features such as user authentication, encryption, and protection against malware.

It should be user-friendly with a simple interface that is easy to learn and operate.

It should support networking features to enable file sharing, internet access, and communication between computers.

It should have regular updates and technical support from the developer to maintain performance and security.

11. The headmaster asked you to design a school monthly magazine. However, he asked you to use a Desktop Publishing (DTP) in designing to impress the readers. Explain four steps that you would follow to accomplish the goal.

The first step is planning the layout by deciding the number of pages, arrangement of text, and placement of images to make the magazine attractive.

The second step is creating and formatting text using columns, headings, and styles to improve readability and presentation.

The third step is inserting graphics and images such as photographs, charts, and drawings to support the written content.

The fourth step is proofreading and editing to ensure there are no spelling, grammar, or formatting errors before printing the final copy.

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1. (i) What is the function of the tool as used in Microsoft Access?

- A. To create table
- B. To create query
- C. To create relationship
- D. To create report
- E. To create form

Correct answer: B. To create query

Reason: The icon shown is for creating a query in Microsoft Access, which is used to retrieve and manipulate data from tables.

(ii) Form One students reported some school laboratory computers malfunctioning. The investigation of the reported problem revealed the failure of data transfer in the CPU. Which part caused the reported problem?

- A. ALU
- B. CU
- C. Memory
- D. RAM
- E. ROM

Correct answer: B. CU

Reason: The Control Unit (CU) of the CPU is responsible for directing the flow of data and instructions. If data transfer fails, the CU is the part affected.

(iii) You were asked to prepare a presentation on the importance of studying the computer studies subject. What kind of software will you use to accomplish the task?

- A. Microsoft Publisher
- B. Microsoft PowerPoint
- C. Microsoft Word
- D. Microsoft Excel
- E. Microsoft Access

Correct answer: B. Microsoft PowerPoint

Reason: PowerPoint is specifically designed for preparing presentations, making it the correct software for the task.

(iv) How can you differentiate third computer from second computer generation?

- A. Third computer uses transistor while second computer use vacuum tube.
- B. Third computer uses vacuum tube while second computer use transistor.
- C. Third computer uses microprocessor while second computer use transistor.
- D. Third computer uses integrated circuits while second computer use transistor.
- E. Third computer uses artificial intelligence while second computer use transistor.

Correct answer: D. Third computer uses integrated circuits while second computer use transistor

Reason: The second generation used transistors, while the third generation introduced integrated circuits, marking the difference.

(v) A subject teacher wants to assign the position of his students using the Microsoft excel program as given in the following figure. Which function would you suggest to be used by a teacher to perform the intended task?

- A. =RANK(B2,\$B\$3:\$B\$5)
- B. =RANK((B2,B3:B5)
- C. =RANK(B2,\$B\$2:\$B\$5)
- D. =RANK((B2,\$B\$2:\$B\$5)
- E. =RANK(B2,\$3B:\$5B)

Correct answer: C. =RANK(B2,\$B\$2:\$B\$5)

Reason: This formula correctly ranks the values in column B by comparing each student's marks with the full list \$B\$2:\$B\$5.

(vi) Sikujua designed a brochure for her ICT club members. She wants to produce 20 printouts of her work. Which one represents the correct procedures for accomplishing her goal?

- A. Click print, click file menu, select printer, type 20 copies then click print.
- B. Click file menu, select printer, click print, type 20 copies then click print.
- C. Click file menu, type 20 copies, click print, select printer and then click print.
- D. Click file menu, click print, select printer, type 20 copies then click print.
- E. Select printer, click file menu, click print, type 20 copies then click print.

Correct answer: D. Click file menu, click print, select printer, type 20 copies then click print

Reason: This is the proper sequential order of printing procedures in Microsoft Word or Publisher.

(vii) You have been invited to prepare Form Four graduation songs in a digital audio file. Which one would be your initial step for the task?

- A. Digitising the analog material
- B. Setting proper recording levels
- C. Balancing the sound quality
- D. Increase higher audio beats
- E. Determining digital audio size

Correct answer: A. Digitising the analog material

Reason: Before editing or improving audio, the first step is converting it into digital format through digitisation.

(viii) Your school secretary wants to see thumbnails of all Microsoft Power Point slides for easily rearrangement. Which type of a view would you suggest to be used to accomplish the task?

- A. Normal
- B. Reading
- C. Outline
- D. Notes page
- E. Slide sorter

Correct answer: E. Slide sorter

Reason: Slide sorter view displays slides in thumbnails which can easily be rearranged.

(ix) Which attribute led the display of default statement "Enter your name" appeared in the following HTML textbox?

- A. Value
- B. Name
- C. Input
- D. Default
- E. Selected

Correct answer: A. Value

Reason: The value attribute specifies the default text to be displayed in a textbox in HTML.

(x) Why is it important to preview the document before printing?

- A. It minimizes the consumption of cartilages to be used.
- B. It helps to reduce typographical errors within the document.
- C. It corrects spelling and formatting mistakes made.
- D. It regulates automatically the margin of the document.
- E. It gives the assurance of the document to be printed.

Correct answer: B. It helps to reduce typographical errors within the document

Reason: Print Preview allows the user to spot layout errors, page breaks, and mistakes before wasting paper and ink.

2. Match the descriptions of the text button alignment used in Microsoft excel in List A with the corresponding alignments in List B by writing the letter of a correct answer beside the item number in the answer booklet provided.

List A

- (i) It aligns the cell contents to the top edge of the cell.
- (ii) It aligns the cell contents to the right edge of the cell.
- (iii) It aligns the cell contents to the left edge of the cell.
- (iv) It centers the cell contents horizontally within the cell.
- (v) It aligns the cell contents to the bottom edge of the cell.
- (vi) It centers the cell contents vertically within the cell.

Correct answers: G, K, H, I, A, F

3. What is the function of each of the given database objects?

(a) Form

A form is used to enter, view, and edit data in a user-friendly manner. It simplifies the process of interacting with a database compared to directly using tables.

(b) Table relationship

A table relationship is used to link data between different tables by matching key fields. This ensures data consistency and helps reduce redundancy.

(c) Macros

Macros are used to automate repetitive tasks in a database. They contain a set of instructions that can be executed with a single command.

(d) Query

A query is used to retrieve, update, or manipulate specific data from one or more tables. It allows users to filter and sort data based on given conditions.

(e) Report

A report is used to present database information in a structured and printable format. It organizes data into readable summaries for decision-making.

4. You have been assigned to create an e-mail account for effective communication for your further studies.

(a) Which program would you use to accomplish the task?

The program to use is an internet browser such as Google Chrome or Mozilla Firefox to access an email service provider like Gmail or Yahoo Mail.

(b) Which steps would you follow to accomplish the task?

First, open an internet browser and visit the website of an email provider.

Second, click on “Create Account” or “Sign Up” to begin registration.

Third, fill in personal details such as name, date of birth, username, and password.

Finally, confirm registration through a verification process such as a code sent to your phone or an alternative email.

(c) Briefly explain the use of spam, Carbon Copy, and Blind Carbon Copy in the electronic mail.

Spam refers to unwanted or junk email usually sent in bulk for advertising or fraudulent purposes. It clogs the inbox and wastes storage space.

Carbon Copy (CC) is used to send a copy of the email to additional recipients apart from the main addressee. All recipients can see the addresses of those in CC.

Blind Carbon Copy (BCC) also sends copies to additional recipients but keeps their addresses hidden from other recipients, maintaining privacy.

5. The academic master created the computer backup by using a storage medium located within the same office. Suddenly the office got fire caused by electricity problem and the data were lost.
- (a) Identify the method of backup done by the academic master.

The method of backup done is local backup.

- (b) Explain three benefits of the method of backup identified in 5(a).

Local backup is fast because files are stored directly onto a local storage device without requiring internet connectivity.

It is inexpensive since it uses storage devices like external hard drives or flash disks.

It allows full control over data security as the storage medium remains physically close to the user.

- (c) Which method of backup could be used to avoid the problem that happened? Give one reason.

The method is cloud backup. The reason is that it stores data online on remote servers, which means data will still be safe even if a local office or device is destroyed.

6. Form Six students complained that their graduation video film had poor quality in term of order, size, color and transitions. The analysis done showed that one of the stages in preparing the video was skipped.
- (a) Identify the skipped step.

The skipped step is editing.

- (b) Explain four procedures you would follow to accomplish the skipped step.

One procedure is arranging video clips in the correct sequence to maintain proper order.

Another procedure is adjusting the size and resolution of the video for clarity.

A third procedure is correcting and enhancing colors to make the video more appealing.

A fourth procedure is adding smooth transitions and effects between clips to improve presentation.

7. Study carefully the following HTML codes and answer the questions that follow:

(a) Which line had the tag used for inserting picture?

The tag used for inserting a picture is found on line 13: ``.

(b) What is the function of the HTML tags presented by line 6, 8 and 11?

Line 6 `<form>` is used to create a form where users can input data.

Line 8 `<input type="text">` is used to create a textbox for entering text.

Line 11 `<td colspan=2>` is used to merge two columns into a single cell in a table.

(c) What will happen if the tag presented by line 3 will be deleted?

If line 3 `<body bgcolor="white">` is deleted, the webpage will no longer have a white background and will default to the browser's standard background color.

(d) If line 11 and 13 were deleted from the given codes, what will be the output?

If line 11 is deleted, the cell will not span across two columns and the table arrangement will change.

If line 13 is deleted, the picture "Crane.jpg" will not appear in the output.

8. (a) A company is planning to conduct a minor LAN renovation by connecting all computers and other devices to a central server.

(i) Identify the type of network physical topology to be designed.

The type of physical topology to be designed is the star topology.

(ii) Why did the company choose the type of topology identified in 8(a)? Give two reasons.

The company chose the star topology because it is easy to manage and troubleshoot, since each computer is connected directly to the central server.

Another reason is that failure of one cable or device does not affect the rest of the network, making it more reliable.

(b) If the designed network would be modified to WLAN. What advantages will the company experience with the new design? Give two advantages.

One advantage is flexibility and mobility, since users can connect to the network without being restricted by cables, allowing them to move freely within the coverage area.

Another advantage is reduced cabling costs, because the wireless system does not require extensive physical wiring, which lowers installation expenses.

9. ESC Ltd is a company which uses the face to face way of selling its devices. The company marketing officer decided to adapt the electronic commerce to widen their business. However, he/she had limited knowledge of this approach. Explain to him/her three benefits and three limitations that the company will face by adapting the new system.

One benefit is wider market coverage, since electronic commerce allows the company to reach customers beyond physical boundaries.

Another benefit is reduced operational costs, because fewer physical outlets are required, saving on rent and utility expenses.

A third benefit is convenience, as customers can browse, order, and pay for products online at any time.

One limitation is the risk of cyberattacks and fraud, as online transactions are vulnerable to hacking and scams.

Another limitation is dependency on technology, since system failures or poor internet connectivity can disrupt business operations.

A third limitation is lack of physical interaction, which may reduce customer trust when compared to face-to-face transactions.

10. A school management asked you to design a certificate for the best oral presenter award in the final year projects presentation session. In accomplishing the task, you decided to use the Microsoft Desktop Publisher program. Why have you decided to use such a program? Explain by giving five points.

Microsoft Desktop Publisher is suitable because it allows creation of high-quality printed materials such as certificates with professional layouts.

It provides ready-made templates that make the designing process faster and easier for beginners.

It supports text and graphic integration, enabling both images and wording to be used effectively on the certificate.

It has design tools such as alignment and color features that enhance the appearance and attractiveness of the certificate.

It allows easy editing and customization, so changes can be made quickly without starting the design from scratch.

11. The director of the Computer Supplier Company Ltd conducted the press conference to inform the customers about proper ways of handling electronic devices. After the conference, most of the customers complained that the communication done was not effective. Analyze four factors that attributed to the reported problem.

One factor could be unclear presentation. If the director used too much technical language, customers may have failed to understand the message.

Another factor could be poor use of communication media. If only verbal communication was used without visual aids like slides or demonstrations, the message may not have been effective.

A third factor could be poor audience engagement. If the director did not allow questions or feedback, customers might have felt left out.

A fourth factor could be time mismanagement. If the conference was too short or too long, important points may not have been properly communicated.

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time : 3 Hours**

**ANSWERS**

**Year : 2022**

**Instructions**

1. This paper consists of sections A, B and C.
2. Answer all questions in section A and B and **one (1)** question from section C.
3. Non-programmable calculators may be used.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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1. i) Which device is used to connect home computers to the internet?

- A. Router
- B. Gateway
- C. Switch
- D. Hub
- E. Modem

Correct answer: E. Modem

Reason: A modem is the device that connects a home computer to the internet by modulating and demodulating signals.

ii) Joha wants to buy a computer for her new secretarial office. What is she supposed to consider in selecting the computer?

- A. UPS durability
- B. CPU speed
- C. Monitor speed
- D. RAM type
- E. Screen shape

Correct answer: B. CPU speed

Reason: CPU speed determines the processing performance, which is important for office work efficiency.

iii) What is the difference between “form” and “report” in database?

- A. Report is an output while form is an input object
- B. Report has header while form has footer
- C. Report is an input while form is an output object
- D. Report can be printed while form cannot be printed
- E. Report has footer while form has header

Correct answer: A. Report is an output while form is an input object

Reason: A form is used to input data into the database, while a report is used to output and present data.

iv) Why Charles Babbage is considered to be a forefather of computer?

- A. He was a founder of analytical engine

- B. He was a founder of Napier's bones
- C. He introduced tabulating machine
- D. He discovered ENIAC
- E. He created punching cards

Correct answer: A. He was a founder of analytical engine

Reason: Charles Babbage designed the analytical engine, considered the first concept of a programmable computer.

v) Which one is the correct syntax for creating a link on a web page in HTML?

- A. <LINK SRC = "abd.html">
- B. <A HREF = "abd.html">
- C. <BODY LINK = "abd.html">
- D. <A SRC = "abd.html">
- E. <LINK IMG = "abd.html">

Correct answer: B.

Reason: The tag is the correct syntax for creating hyperlinks in HTML.

vi) How are the commands (increase/decrease indent icons) used in Microsoft word?

- A. To decrease and increase indent
- B. To minimize and decrease indent
- C. To reduce and raise indent
- D. To raise and reduce indent
- E. To maximize and increase indent

Correct answer: A. To decrease and increase indent

Reason: The two indent buttons in Word are used to increase and decrease paragraph indentation.

vii) The type of computer which is used for prediction of the weather conditions worldwide is called

- A. laptop computer
- B. supercomputer
- C. mainframe computer
- D. microcomputer
- E. minicomputer

Correct answer: B. supercomputer

Reason: Supercomputers are used for highly complex calculations such as weather forecasting.

viii) Which of the following are the types of computers according to their functionality?

- A. Digital and analog computers
- B. Supercomputer and minicomputers
- C. Hybrid and microcomputers
- D. Analog and special purpose computers
- E. Digital and general purpose computers

Correct answer: A. Digital and analog computers

Reason: Based on functionality, computers can be classified as digital (discrete data) or analog (continuous data).

ix) A type of multimedia which contains animations, sound and video elements is known as

- A. hypertext
- B. hypermedia
- C. hyperlink
- D. mixed media
- E. visual media

Correct answer: B. hypermedia

Reason: Hypermedia integrates multimedia elements like sound, video, animations, and text.

x) Which Microsoft PowerPoint document views allow a user to change the position of slides?

- A. Slide show and normal/slide view
- B. Outline and slide show
- C. Outline and slide sorter
- D. Slide sorter and normal/slide view
- E. Outline and normal/slide view

Correct answer: D. Slide sorter and normal/slide view

Reason: Slide sorter and normal view allow rearranging slides by dragging and dropping.

2. Match the functions of software in List A with their corresponding names in List B by writing the letter of the correct response beside the item number in the answer booklet provided.

List A

- i) A special program that makes certain services of computing goes on smoothly.
- ii) A set of complex program that manages input, output and storage operations in a computer.
- iii) A program that is designed to help a user to accomplish specific tasks.
- iv) A type of software which is used to establish communication between two or more computers.
- v) A type of system software which is recorded permanently on an electronic chip.

List B

- A. Operating system
- B. Malware
- C. Application software
- D. Open source software
- E. Firmware
- F. Utility software
- G. Storage software
- H. Networking software

Correct answers: i) F, ii) A, iii) C, iv) H, v) E

3. Re-arrange the given sentences in a sequential order beginning with the first step to the last step.
- A. Click tools and then click backup now.
  - B. In the properties dialog box, click tools.
  - C. In my computer window, right click the Local Disk (C:).
  - D. From the shortcut menu, click properties.
  - E. Open my computer.

Correct order: E, C, D, B, A

4. (a) Joshua has a problem when typing. Every time he wishes to type the word "Goods", he mistakenly types "Gods". How can he assure himself that he has written the word Goods correctly without reading the whole document?

Joshua can use the Find and Replace feature in Microsoft Word. By typing "Gods" in the Find box and "Goods" in the Replace box, he can automatically correct all instances of the mistake throughout the document.

(b) Explain the procedures of inserting "page number" and "header and footers" into a Microsoft word document. Give the importance of each.

To insert a page number, click the "Insert" tab, then choose "Page Number", and select the desired position (top, bottom, or margins). Page numbers are important for easy navigation and referencing within the document.

To insert a header and footer, click the "Insert" tab, then choose "Header" or "Footer", and type the required text such as document title, date, or author. Headers and footers are important for providing consistent information on every page of the document.

5. Study carefully Figure 1 and then answer the questions that follow:

(a) What is the type of the network presented in Figure 1? Explain three disadvantages of using this kind of network.

The type of network is Bus topology.

One disadvantage is that if the main cable fails, the whole network goes down.

Another disadvantage is that as more devices are added, the network becomes slower due to data collisions.

A third disadvantage is difficulty in troubleshooting errors, since a fault in one part of the cable affects the entire network.

(b) Which device should be connected at D2? Give one importance of this device.

The device that should be connected is a terminator.

Its importance is to prevent signal reflection along the main cable, which could cause data collisions and communication errors.

(c) What will happen when a cable between the printer and marketing PC breaks?

If the cable breaks, communication along the bus will be interrupted. Devices after the break will not be able to communicate, causing part of the network to fail.

6. In a survey conducted on the flood which occurred in Tanzania in 2018, a worksheet was designed to record the height of flood as reported from different places around the country. The data is entered in the following worksheet and then answer the questions that follow:

(a) What are the cell references of Sites, Floods Height, Damage and Lives Loss? Give the name of the formatting done in row 1.

The cell references are:

Sites – Column A (A3:A9),

Floods Height – Column B (B3:B9),

Damage – Column C (C3:C9),

Lives Loss – Column D (D3:D9).

The formatting done in row 1 is merging and centering of cells with bold text.

(b) It was noted that the flood with a height of 200 cm or above had caused the loss of lives. Write an IF function to be used in cell D3 which will display “Yes” or “No” according to the given flood height.

The function is =IF(B3>=200,"Yes","No").

(c) Which function can you apply to find the number of sites surveyed?

The function is =COUNTA(A3:A9).

(d) Suppose you are required to generate a pie chart that displays the names of the site and the floods heights, which steps would you follow to generate the pie chart?

First, highlight the data range including site names and flood heights.

Second, click the “Insert” tab on the toolbar.

Third, select “Pie Chart” from the chart options.

Finally, format the chart by adding titles and labels for clarity.

(e) If the value in cell B4 is to be changed to 115, how many cells altogether will change?

Two cells will change, B4 itself and D4, since D4 depends on the condition of the flood height.

7. (a) What is search engine as used in ICT?

A search engine is a software application that allows users to search and retrieve information from the internet by entering keywords or phrases.

(b) Email is one of the methods used to spread viruses. Briefly explain other four limitations of using email as a means of communication.

One limitation is the risk of spam, where users receive a large number of unwanted promotional messages.

Another limitation is delay in response, as recipients may not check their email regularly.

A third limitation is the possibility of phishing, where fraudulent emails are used to steal sensitive information.

A fourth limitation is the lack of personal touch compared to face-to-face communication, which may reduce effectiveness.

8. (a) Bahati wishes to create his own business card but he does not know the appropriate software to use. Which four software would you advise him to choose?

The four software are Microsoft Publisher, CorelDRAW, Adobe InDesign, and Microsoft Word.

(b) Most of Desktop Publisher software have various tools for designing, manipulating and editing a publication. What are the functions of three common tools provided in the Microsoft Desktop Publisher?

The text tool is used to create and format text in the publication.

The picture tool is used to insert and adjust images or clip art in the document.

The shape tool is used to draw basic figures like rectangles, circles, and lines to improve design layout.

(c) Suppose you have been given a task to insert a clip art graphic into a publication in Microsoft Publisher, which steps would you follow to perform the given task?

First, open the publication and place the cursor at the point where the graphic is to appear.

Second, go to the “Insert” menu and click on “Clip Art”.

Third, search for the required graphic from the Clip Art gallery.

Finally, click “Insert” and adjust the size or position of the graphic.

9. (a) A librarian at your school wants to change the students and teachers’ record keeping system from manual to electronic database. He proposed the type of database which contains tables.
- i) Identify the name of the database model proposed.

The database model proposed is the relational database model.

- ii) Provide three advantages of a new system of record keeping.

It improves accuracy by reducing human errors compared to manual systems.

It allows quick retrieval and updating of records, saving time and effort.

It enhances security through password protection and user authentication.

(b) The following snapshot shows information about students who borrowed different books from the school library.

- i) What are the objects labelled with letters A and B? Give their names.

Object A is a Table.

Object B is a Form.

- ii) Why is an object B very important in creating the database?

A form is important because it provides a user-friendly interface for entering and editing data in the database.

- iii) Write the validation rule and the validation text used in the “NumberOfBooks” field.

Validation rule:  $\leq 5$

Validation text: "You cannot borrow more than 5 books."

10. Draw a well labelled diagram of the functional elements of the Central Processing Unit (CPU) and explain the function of each element.

The CPU diagram consists of:

- Control Unit (CU): Directs data flow between CPU, memory, and input/output devices.
- Arithmetic and Logic Unit (ALU): Performs mathematical calculations and logical operations.
- Registers: Provide temporary storage for data and instructions being processed.
- Cache memory: Stores frequently used instructions and data for fast access.

11. Explain four factors which can be considered during preparation of a presentation.

One factor is identifying the audience to ensure the content suits their level of understanding.

Another factor is organizing the content logically to flow smoothly from one point to the next.

A third factor is choosing the right visual aids such as charts, graphs, and images to support the message.

A fourth factor is rehearsing the presentation to build confidence and manage time effectively.

12. Multimedia is very popular in designing advertisements and website nowadays. Explain four advantages of using multimedia in web designing.

Multimedia makes websites more attractive by combining text, images, animations, and videos.

It increases user engagement, as interactive elements encourage visitors to stay longer on the site.

It improves communication by presenting information in multiple forms, making it easier to understand.

It enhances marketing by appealing to users visually and emotionally, increasing the chances of influencing them.

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**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2021**

**Maelekezo**

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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1. (i) In a computer system, unprocessed numbers, text, and pictures for various purposes are known as:

- A. Knowledge
- B. Data
- C. Information
- D. Contents
- E. Figures

Correct Answer: B. Data

Reason: Data represents raw, unprocessed facts that can later be transformed into meaningful information, unlike knowledge, contents, or figures, which represent processed outcomes.

(ii) Which objects will you use to create a form in Microsoft Access?

- A. Tables and Queries
- B. Tables and Design Views
- C. Tables and Reports
- D. Queries and Reports
- E. Queries and Design Views

Correct Answer: A. Tables and Queries

Reason: In Microsoft Access, forms are often based on tables to input and display data, and queries can be used to refine or manipulate the data displayed in the form.

(iii) Which method is best for protecting the computer against short-circuiting?

- A. Providing standby generator
- B. Providing fire extinguisher
- C. Providing surge protectors
- D. Providing insulated cables
- E. Providing air ventilation

Correct Answer: C. Providing surge protectors

Reason: Surge protectors prevent electrical overloads that can result in short-circuiting, whereas options like fire extinguishers or ventilation do not prevent electrical damage.

(iv) What does an advertisement with a combination of text, audio, pictures, and some animations present?

- A. Hyperlink Presentation
- B. Hypermedia Presentation
- C. Multimedia Presentation
- D. Single Media Presentation
- E. Interactivity Presentation

Correct Answer: C. Multimedia Presentation

Reason: A multimedia presentation integrates text, audio, images, and animations, unlike hyperlink presentations, which focus on navigation, or single media presentations, which utilize one medium.

(v) The correct sequence of computers arranged in descending order according to their physical size and processing power is:

- A. Mainframe Computer, Minicomputer, Supercomputer
- B. Minicomputer, Mainframe Computer, Supercomputer
- C. Supercomputer, Mainframe Computer, Minicomputer
- D. Minicomputer, Supercomputer, Mainframe Computer
- E. Mainframe Computer, Supercomputer, Minicomputer

Correct Answer: C. Supercomputer, Mainframe Computer, Minicomputer

Reason: Supercomputers are the largest and most powerful, followed by mainframes and then minicomputers.

(vi) What is the function of the features \*\*\*\*\* as used in Microsoft Excel?

- A. To align the text top, middle, and left
- B. To align the text left, middle, and center
- C. To align the text top, middle, and right
- D. To align the text left, center, and right
- E. To align the text top, middle, and bottom

Correct Answer: E. To align the text top, middle, and bottom

Reason: The feature adjusts vertical alignment in cells to distribute text evenly between the top, middle, and bottom of a cell.

(vii) The shortcut key used to open the new Microsoft Word document without closing the existing document is:

- A. Enter+N
- B. Ctrl+N
- C. Shift+N
- D. Insert+N
- E. Alt+N

Correct Answer: B. Ctrl+N

Reason: Ctrl+N is the universal shortcut for creating a new document in most applications, including Microsoft Word.

(viii) Which one is a correct order of making audio files?

- A. Editing, Mixing, Recording, and Burning
- B. Recording, Editing, Mixing, and Burning
- C. Mixing, Editing, Burning, and Recording
- D. Recording, Mixing, Editing, and Burning
- E. Mixing, Editing, Recording, and Burning

Correct Answer: B. Recording, Editing, Mixing, and Burning

Reason: The logical sequence involves first recording the audio, then editing to refine it, mixing to combine tracks, and finally burning the output.

(ix) Which software can you use to prepare a month calendar?

- A. Microsoft Word
- B. Microsoft Excel
- C. Microsoft Access
- D. Microsoft Photoshop
- E. Microsoft Publisher

Correct Answer: B. Microsoft Excel

Reason: Microsoft Excel, with its grid format, is ideal for creating structured layouts such as calendars.

(x) Which function can be applied in the following worksheet in order to display the status of PROFIT or LOSS?

- A. =IF(B2>D2, "PROFIT", "LOSS")
- B. =IF(C2<D2, "PROFIT", "LOSS")
- C. =IF(C2<D2, "LOSS", "PROFIT")
- D. =IF(B2>C2, "PROFIT", "LOSS")
- E. =IF(C2>B2, "PROFIT", "LOSS")

Correct Answer: A. =IF(B2>D2, "PROFIT", "LOSS")

Reason: The formula compares revenue (B2) with cost (D2); if revenue exceeds cost, it outputs "PROFIT"; otherwise, it outputs "LOSS".

2. Match the functions of Microsoft Office Publisher icons in List A with their corresponding icons in List B by writing the letter of the correct answer beside the item number in your answer booklet.

List A:

- (i) The icon which is used to check for spelling and grammar mistakes
- (ii) The icon which is used to print publisher document
- (iii) The icon which is used to save publisher document
- (iv) The icon which is used to remove text on a publisher document
- (v) The icon which is used to apply styles on a text in publisher document

List B:

- A.
- B.
- C.
- D.
- E.
- F.

G.  
H.

Answers:

- (i) B
- (ii) G
- (iii) A
- (iv) H
- (v) E

3. Arrange the steps for designing a good database in a correct order beginning with the first step to the last step by writing the letter of each step in the answer booklet.

Steps:

- A. Define a primary key for each table.
- B. Design a draft database to determine the number of files or tables.
- C. Design data entry forms needed for the database.
- D. Carefully study the requirements of the user.
- E. Divide the information into separate fields, records, and tables.

Answer:

- 1. D
- 2. B
- 3. E
- 4. A
- 5. C

4. Suppose a Computer Subject teacher plans to install a network in a staff room, and you are asked to give advice on his decision:

(a) What type of network would you suggest to be installed in the staff room?

A local area network (LAN).

(b) Why have you proposed such a type of network in part (a)? Give two reasons.

- i. A LAN is cost-effective and suitable for a small space like a staff room.
- ii. It allows for efficient file sharing and communication between connected devices.

(c) What two things will the teachers benefit from the network established in part (a)?

- i. Easier access to shared resources like printers and files.
- ii. Improved communication and collaboration among teachers.

5. (a) What is the function of each of the following components in the computer system?

(i) Arithmetic Logical Unit (ALU): Performs all arithmetic operations (such as addition and subtraction) and logical operations (such as comparisons).

(ii) Control Unit (CU): Directs and coordinates the activities of the computer by fetching, decoding, and executing instructions.

(iii) Uninterruptible Power Supply (UPS): Provides backup power during electrical outages and protects the system from power surges.

(b) Why do computers store data in binary form? Give a reason.

Computers use binary form because it is efficient and reliable, representing data using only two states (0 and 1), which align with the on/off states of electronic components.

(c) Why is it strongly advised to always save your work while working in Microsoft Word?

It prevents data loss in case of power failure, accidental closure, or system crashes.

6. Jimi has no technical knowledge about the computer, but he plans to buy a new computer for his learning purpose.

(a) Explain three factors he should consider before buying a new computer.

i. Processor speed and performance: Ensures smooth operation and multitasking.

ii. Storage capacity: Determines how much data he can store.

iii. Budget: Helps him choose a computer within his financial capability.

(b) Explain two types of computer software expected to be installed in a computer bought. Give two examples for each category.

i. System software: Manages hardware and software resources. Examples include Windows OS and macOS.

ii. Application software: Performs specific tasks. Examples include Microsoft Word and Excel.

7. A seller prepared the following worksheet by using a spreadsheet program to monitor the sales of textbooks.

(a) Which function can be applied in cell D12 to calculate the total sales?

=SUM(D3:D8)

(b) Give two advantages of using the functions in a worksheet.

i. Automation of repetitive tasks: Functions like SUM and AVERAGE make calculations efficient by automating processes that would otherwise require manual computation.

ii. Accuracy: Functions reduce the likelihood of errors in calculations, ensuring precise results.

(c) Use cell reference to write the formula that will be used to calculate the total profit for French books stored in cell G7.

=E7-F7

(d) Use any cell in the given worksheet as an example to differentiate absolute cell referencing from relative cell referencing.

- Relative referencing: A formula like =D3+E3 adjusts automatically when copied to another cell.
- Absolute referencing: A formula like =\$D\$3+\$E\$3 does not adjust when copied to another cell.

8. (a) What is the importance of theme in Microsoft PowerPoint?

Themes provide a consistent and professional appearance across all slides, ensuring uniformity in design and layout.

(b) Describe the following types of views as applied in Microsoft PowerPoint:

- (i) Normal: The primary editing view used to create and arrange slides.
- (ii) Slide Sorter: Displays a thumbnail view of all slides, allowing easy reorganization.
- (iii) Slide Show: Runs the presentation as a full-screen slide show for viewing.
- (iv) Notes Page: Displays the slide alongside its associated speaker notes.

(c) Suppose you have been given a task to switch a slide to a different layout. Which steps would you follow to complete the given task?

- i. Go to the "Home" tab.
- ii. Click on "Layout" in the Slides group.
- iii. Select the desired layout from the list of available options.

9. (a) Explain three importance of database systems in daily life.

- i. Data organization: Databases enable systematic storage and retrieval of data, making it easier to manage large volumes of information.
- ii. Efficiency: Reduces the time and effort required to search, update, and process data.
- iii. Security: Provides mechanisms to protect sensitive data from unauthorized access.

(b) One of the government institutions has two different departments. One department uses paper-based databases while the other uses computerized databases. Which department will work more efficiently? Give four reasons for your answer.

The department using computerized databases will work more efficiently due to:

- i. Speed: Computerized databases allow for faster data retrieval and processing compared to manual methods.
- ii. Accuracy: Automated systems reduce human errors in calculations and data entry.
- iii. Accessibility: Data can be accessed from multiple locations simultaneously.
- iv. Scalability: Computerized systems handle large volumes of data without significant performance issues.

10. (a) Your teacher assigned all students in your class to design a website that advertises your school. The advertisement in the page includes information about physical address, email address, image of the school map, and a link to a Home page named "Go to Home". One of your fellow students had the following HTML codes which need some corrections. Identify the mistakes made and write the correct codes in order to give the correct results.

Given code:

```
<html>
<body bgcolor="lavendar">
<font face="Tahoma" size="7">CONTACT US</font> <br>
<table border="1" cellpadding="1">
<tr>
<td>Physical Address</b>
<h4>Changamwe Secondary School<br>
P.O Box 724<br>
Songwe</td>
</tr>
<tr>
<td>Email Address</b>
<a href="mailto:changamwe@yahoo.ac.ke">Mail Us</a></td>
</tr>
<tr align="center">
<td colspan="2"><img source="Kona1.jpg" width="80" height="50"></td>
</tr>
<tr align="center">
<td colspan="2"><a link="Home.html">Go to Home</a></td>
</tr>
<table>
</html>
```

Corrected code:

```
``html
<html>
<body bgcolor="lavender">
<font face="Tahoma" size="7">CONTACT US</font><br>
<table border="1" cellpadding="5">
<tr>
<td><b>Physical Address</b><br>
Changamwe Secondary School<br>
P.O Box 724<br>
Songwe</td>
</tr>
<tr>
<td><b>Email Address</b><br>
<a href="mailto:changamwe@yahoo.ac.ke">Mail Us</a></td>
</tr>
<tr>
<td colspan="2" align="center"></td>
```

```

</tr>
<tr>
<td colspan="2" align="center"><a href="Home.html">Go to Home</a></td>
</tr>
</table>
</body>
</html>

```

(b) Give an output of the following HTML codes which will be displayed in a web browser.

```

<html>
<body>
<h3>Student name</h3><input type="text" name="stdname"><br>
<h3>Gender</h3><input type="radio" name="stdname">Male
<input type="radio" name="stdname">Female<br>
<h3>Other information</h3><br>
<textarea wrap></textarea>
</body>
</html>

```

Output:

A webpage with the following elements:

- A text input box labeled "Student name".
- Two radio buttons labeled "Male" and "Female" under the "Gender" heading.
- A text area box under the "Other information" heading.

11. Why schools should include the use of Information and Communication Technology in teaching and learning processes? Explain by giving four reasons.

- i. Enhances learning experiences: ICT tools like videos, interactive simulations, and digital content provide engaging and effective learning experiences.
- ii. Promotes collaboration: ICT fosters group projects and collaborative learning through tools like Google Classroom or shared documents.
- iii. Prepares students for the future: It equips students with skills necessary for the digital era, such as using computers, coding, and internet research.
- iv. Improves accessibility: ICT allows students in remote areas or with disabilities to access quality education through online platforms.

12. Suppose you were given an opportunity to convince the headmaster to have the internet connection in your school. Explain four benefits of internet applications that will convince the headmaster to pay for the school's internet connection fees and bills.

- i. Access to online resources: Students and teachers can access vast educational materials, e-books, and journals to enhance learning and teaching.
- ii. Improves communication: Tools like emails, video conferencing, and educational forums enable efficient communication within and outside the school.
- iii. Facilitates e-learning: Internet connection supports online classes and virtual learning, especially in emergencies like pandemics.
- iv. Enhances administration: The internet simplifies administrative tasks like online fee payment systems, staff coordination, and record management.

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**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time : 3 Hours**

**ANSWERS**

**Year : 2020**

**Instructions**

1. This paper consists of sections A, B and C.
2. Answer all questions in section A and B and **one (1)** question from section C.
3. Non-programmable calculators may be used.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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1. i) The following are physical network topologies except

- A. Ring topology
- B. Ethernet topology
- C. Bus topology
- D. Star topology
- E. Mesh topology

Correct answer: B. Ethernet topology

Reason: Ethernet is a communication standard that defines how data is transmitted over networks, not a physical topology. The others (ring, bus, star, mesh) are true physical network topologies.

ii) Which technology was used in the fifth computer generation?

- A. Large Scale Integrated
- B. Vacuum tubes
- C. Transistors
- D. Artificial intelligence
- E. Thermionic valves

Correct answer: D. Artificial intelligence

Reason: The fifth generation of computers is characterized by the use of artificial intelligence and advanced parallel processing techniques. The other technologies belong to earlier generations.

iii) Identify the correct data type in the field of gender in a given figure which is shown in a drop down list of M for male and F for female.

- A. Attachment
- B. Memo
- C. Lookup Wizard
- D. Hyperlink
- E. Yes/No

Correct answer: E. Yes/No

Reason: Gender field with limited options (M/F) is best represented by a Yes/No data type because it restricts entries to two possible values. Lookup Wizard is used to pull data from other tables, not to limit a field to two choices.

iv) Suppose you want to find and download computer studies books from the internet, which program would you use?

- A. Google search engine
- B. Mozilla Firefox
- C. Google Chrome
- D. Web browser
- E. Internet Explorer

Correct answer: D. Web browser

Reason: A web browser is the general program used to find and download resources from the internet. Mozilla Firefox, Google Chrome, and Internet Explorer are examples of web browsers, but the most accurate and general choice here is Web browser.

v) Which action enables a word processor to capture information?

- A. Copy and paste
- B. Cut and copy
- C. Cut and paste
- D. Copy and insert
- E. Cut and save

Correct answer: D. Copy and insert

Reason: Capturing information means taking data from one place and placing it into the word processor. Copy and insert achieves this, while the others are not standard or correct combinations in word processing terminology.

vi) What does the tag in HTML emphasize?

- A. Italic text
- B. Bold text
- C. Coloured text
- D. Underline text
- E. Enlarge text

Correct answer: D. Underline text

Reason: The tag in HTML is used to underline text. Italics () and bold () are handled by different tags, while specifically underlines content.

vii) Identify the type of malicious program that duplicates itself, blocking the computer memory and storage. The given options were:

- A. Virus
- B. Firmware
- C. Trojan horse
- D. Worm
- E. Spam

Correct answer: A. Virus

Reason: A virus is a malicious program that can duplicate itself and often causes damage by blocking or consuming memory and storage. Worms also self-replicate, but the keyword “blocking memory and storage” fits the definition of a virus.

viii) Amina was rewarded with a computer game DVD during her birthday. In which category does this gift fall?

- A. Entertainment software and storage device
- B. Utility software and storage device
- C. Application software and storage device
- D. System software and storage device
- E. Firmware software and storage device

Correct answer: A. Entertainment software and storage device

Reason: A computer game is classified as entertainment software. Since it was given in the form of a DVD, it also represents a storage medium.

ix) A school debate club invited speakers to address issues of gender and HIV/AIDS in the school assembly hall. Speakers used a microphone, a computer and a projector to demonstrate their presentation through animations and videos. What type of presentation was used in relation to the devices used?

- A. Audio and sound presentation
- B. Video and text presentation
- C. Visual and text presentation
- D. Multimedia presentation
- E. Power point presentation

Correct answer: D. Multimedia presentation

Reason: Multimedia presentations combine different forms of content such as audio, video, animations, and text, exactly as described in the question.

x) The following spreadsheet was prepared to show the results of the students who did three different tasks. In cell E5 an error occurred. What might be the reason?

- A. The column is not wide enough to accommodate the value.
- B. The formula references an invalid intersection of cells.
- C. The formula uses incorrect argument or operator.
- D. The reference to a value is not available to a formula.
- E. There is invalid cell referencing in the formula used.

Correct answer: D. The reference to a value is not available to a formula.

Reason: Errors in Excel like #REF occur when a formula tries to refer to a cell that does not exist or has been deleted. That is the most accurate reason for the error in E5.

2. Match the functions of desktop publishing (DTP) tools in List A to their corresponding tool names in List B by writing the letter of the correct response beside the item number in the answer booklet provided.

| LIST A                                                                            | LIST B               |
|-----------------------------------------------------------------------------------|----------------------|
| i) A tool which is used for magnifying publications view.                         | A. Shapes tool       |
| ii) A tool which is used to turn around text or graphics.                         | B. Objects tool      |
| iii) A tool which you can use to draw passage frames, insert and manipulate pages | C. Rotate tool       |
| iv) A tool which can be used to pick, none and resize images and text             | D. Select image tool |
| v) A tool which is used to draw basis figures and importing objects               | E. Select tool       |
|                                                                                   | F. Texted tool       |
|                                                                                   | G. Zoom tool         |
|                                                                                   | H. Text tool         |

Correct answers: G, C, F, E, A

3. Re-arrange the given sentences in a sequential order beginning with the first step to the last step.
- A. Click OK button.
  - B. Click print preview.
  - C. Click print from the file menu.
  - D. Open a document to be printed.
  - E. Select the printer.

Correct order: D, E, C, B, A

4. (a) Explain the importance of information in our daily life, with examples.

Information helps people in making informed decisions. For example, a farmer uses weather information to decide when to plant crops.

Information facilitates communication and understanding between individuals. For example, sharing news helps a community stay updated on current events.

Information supports learning and education. For instance, students use textbooks and online resources to gain knowledge in different subjects.

Information is crucial for business operations. For example, managers use sales data to plan for stock and future investments.

Information is also important in healthcare. Doctors rely on patient records and medical information to provide proper treatment.

- (b) Explain two ways of disseminating information with examples.

One way of disseminating information is through electronic media. For example, television and radio broadcasts spread news to a wide audience.

Another way is through print media. Newspapers and magazines are used to distribute information to the public.

5. (a) Explain three possible types of database model he/she could develop when designing a school database.

The hierarchical database model organizes data into a tree-like structure. For example, student data may be linked under classes and departments.

The network database model connects records through multiple relationships. For example, a student may be linked to several subjects and teachers.

The relational database model organizes data into tables with rows and columns. For example, student details, courses, and marks can be stored in separate tables and linked using keys.

- (b) State steps to follow in order to establish the relationship between two or more tables in the opened database.

The first step is to open the database application and select the option to view the relationships.

The second step is to add the tables that you want to relate into the relationship window.

The third step is to drag the primary key field from one table to the matching foreign key field in the other table.

The fourth step is to set the relationship type, such as one-to-one or one-to-many.

The final step is to enforce referential integrity to ensure data consistency between the related tables.

6. Read the given screenshot and answer the questions that followed:

- (a) What is the name of a processor available at Nyangaluka Company?

The name of the processor available is Intel(R) Core(TM) i5-6200U 2.30 GHz.

- (b) What are the sizes of primary memory and secondary memory offered by a company?

The primary memory size offered by the company is 8.00 GB RAM.

The secondary memory size offered is a 250 GB Hard drive with 7400 rpm.

(c) Assume you have requested a member of Nyangaluka Company to install for you Windows 7 instead of UNIX operating system. What four benefits do you expect to get on the use of such operating system?

Windows 7 is user-friendly and easy to operate compared to UNIX, making it suitable even for beginners.

Windows 7 supports a wide range of software applications and games which may not run on UNIX.

Windows 7 provides better hardware compatibility with devices such as printers and scanners.

Windows 7 has improved graphical interface and multimedia support which enhances user experience.

7. The JJ Company which deals with home theatre system has four offices in three different cities: Dar es Salaam, Mwanza and Dodoma. The Head of Department decided to connect all these offices through a network. However, he does not know the type of network to use.

(a) Explain to the Head of Department three types of computer networks you know and suggest the proper type of network to be established.

(b) Provide one advantage and one disadvantage of the type of network suggested in part (a).

(a) One type of computer network is the Local Area Network (LAN). This network covers a small area such as a single building or office. It allows computers to share resources like printers and files within a limited location.

Another type of computer network is the Metropolitan Area Network (MAN). This type covers a larger geographical area such as a city or several nearby towns. It is larger than a LAN but smaller than a WAN.

A third type is the Wide Area Network (WAN). This network spans very large geographical areas, often connecting offices in different cities or countries. It uses long-distance communication technologies like satellites and leased telephone lines.

The proper type of network to be established for JJ Company is a WAN because the offices are in three different cities.

(b) One advantage of a WAN is that it allows efficient communication and sharing of information between offices located in different geographical areas.

One disadvantage of a WAN is that it is expensive to set up and maintain because it requires specialized equipment and services from telecom providers.

8. (a) An academic master of your school asked you to prepare an end of term students' academic report using Microsoft Word. The report intends to include the table which shows different subjects and scored marks. As an IT student;
- i) Which steps would you follow to insert a table with 10 rows and 7 columns?

First, open Microsoft Word and place the cursor at the point where the table is to be inserted.

Second, click on the "Insert" tab in the menu bar and then select "Table".

Third, drag to highlight 10 rows and 7 columns or use the "Insert Table" option to specify 10 rows and 7 columns.

Finally, click "OK" and the table will be inserted into the document.

- ii) If after creating a table in part (a)(i), you realized that the word computer is typed komputa; which feature can you use to check and correct automatically other mistakes made?

The feature used to check and correct mistakes automatically is the Spell Checker. It detects misspelled words and suggests corrections.

- (b) Differentiate "autoText" from "autoComplete" as used in Microsoft Word.

AutoText is a feature that allows users to store frequently used text or graphics and insert them quickly into a document whenever needed.

AutoComplete is a feature that predicts the rest of a word or phrase as you type and offers to complete it automatically, such as suggesting the current date.

9. Suppose you have been sent by your parent to buy some of the household items from the shop. In order to make a clarification about the purchases, you decided to use the following worksheet for simplicity.

(a) Which function would you apply to find the cost of sugar?

The function to use is multiplication:  $=B2*C2$ , which gives the cost of sugar.

(b) Which function will you use to find the lowest cost for all items bought?

The function to use is  $=MIN(E2:E5)$ .

(c) Which function can be applied to count the number of cells that costs Tsh. 100 per item?

The function to use is  $=COUNTIF(C2:C5,100)$ .

(d) If the price of all items has been increased by 10%, which formula would you use in cell E2 in order to calculate the new cost of sugar?

The formula is  $=B2C2(1+\$C\$7)$ , where  $\$C\$7$  contains the 10% increased price.

(e) Assume your parent wants to know the increased cost, which functions and formula can you use to accomplish this task?

The function is SUM, and the formula is  $=SUM(E2:E5)*(1+\$C\$7)$ , which calculates the total cost after adding 10%.

10. Explain five factors to be considered in order to prepare a quality presentation.

A quality presentation should consider the audience. The presenter must understand the level of knowledge and interests of the audience to tailor the presentation content accordingly.

The second factor is clarity of content. The information presented should be simple, clear, and well-structured to avoid confusing the audience.

The third factor is the use of visual aids. Presentations become more effective when supported by images, charts, or videos to make the content more engaging.

The fourth factor is time management. The presenter must plan the content to fit within the allocated time and avoid rushing or prolonging unnecessarily.

The fifth factor is confidence and delivery. The presenter should maintain eye contact, use clear voice projection, and show confidence to keep the audience attentive.

11. Describe four measures that could be taken to protect a computer from damage.

One measure is to use a surge protector. This protects the computer from sudden spikes in electrical power which could damage the internal components.

Another measure is to install antivirus software. This prevents malicious programs such as viruses and malware from damaging the computer system.

A third measure is to keep the computer in a clean and dust-free environment. Dust can clog cooling fans and cause overheating which may damage the hardware.

A fourth measure is to perform regular system updates and maintenance. Updating the operating system and applications ensures the computer remains secure and stable, preventing software-related damage.

12. Explain four virtual (effective) services enhanced by the use of internet in the society today.

One virtual service is online banking. People can transfer money, check balances, and pay bills without visiting the bank physically.

Another service is e-learning. Students and teachers can access educational materials and attend virtual classes from different parts of the world.

A third service is e-commerce. Businesses and customers use the internet to buy and sell goods and services through online platforms.

A fourth service is telemedicine. Patients can consult doctors online, receive medical advice, and access health information without physically visiting a hospital.

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036/1

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2018**

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

(i) The end product of the computer processing is known as

- A. news
- B. input
- C. information
- D. data
- E. program

Correct Answer: C. information

Reason: Information is the processed data that is meaningful and serves as the final output of a computer's processing system. Other options like data and input are part of the process but not the final product.

(ii) The increase of voltage above 110% of the normal voltage is called

- A. over voltage
- B. high voltage
- C. sag
- D. alternation
- E. surge

Correct Answer: E. surge

Reason: Surge refers to a sudden spike in voltage levels above the normal limit, while over voltage and high voltage refer to consistently elevated levels, and sag indicates a voltage drop.

(iii) A computer hardware which uses laser light technology to write and read data from a disc is known as

- A. floppy disc drive
- B. hard disc drive
- C. compact disc drive
- D. flash disc drive
- E. Digital versatile disc drive

Correct Answer: E. Digital versatile disc drive

Reason: A Digital Versatile Disc (DVD) drive uses laser technology to write and read data, unlike hard discs or floppy drives which use magnetic methods.

(iv) The part of the computer which specifically does the logical operations is called

- A. Central processing unit
- B. Logic and Control Unit
- C. Arithmetic and Logic Unit
- D. Arithmetic control unit
- E. Arithmetic and processing unit

Correct Answer: C. Arithmetic and Logic Unit

Reason: The Arithmetic and Logic Unit (ALU) is responsible for performing all logical and arithmetic operations in a computer.

(v) A software which is installed when a new hardware is connected to the computer system is called

- A. Utility program
- B. Driver
- C. Operating system
- D. Firmware
- E. Application software

Correct Answer: B. Driver

Reason: A driver is a specific program installed to enable hardware to communicate and function properly with the operating system.

(vi) The correct use of the web layout in Microsoft word is

- A. to view website
- B. to browse the internet
- C. to save Webpages
- D. to print a web documents
- E. to see a document in a web

Correct Answer: E. to see a document in a web

Reason: The web layout feature in Microsoft Word allows users to preview how their documents would look in a web format.

(vii) Which of the following error in an excel is displayed due to invalid intersection of cells?

- A. #N/A
- B. #NUM!
- C. #NULL!
- D. #VALUE!
- E. #REF

Correct Answer: C. #NULL!

Reason: The #NULL! error occurs when an invalid intersection is used in Excel formulas, unlike #N/A for unavailable data and #REF for invalid cell references.

(viii) A file system extension used by default when saving a new word document in MS word 2007 is

- A. .accdb
- B. .docx
- C. .doc
- D. .txt
- E. .xlsx

Correct Answer: B. .docx

Reason: MS Word 2007 uses the .docx extension by default, while .doc was used in earlier versions.

(ix) A type of topology which is more difficult to configure is called

- A. Bus
- B. Star
- C. Tree
- D. Ring
- E. Mesh

Correct Answer: E. Mesh

Reason: Mesh topology is more complex to configure due to its point-to-point connection between nodes.

(x) Which one among the following set of factors distinguish primary and secondary storages of the computer?

- A. Speed, size and technology
- B. Size, technology and persistence
- C. Persistence, technology and speed
- D. Speed, size and persistence
- E. Speed, size and user friendliness

Correct Answer: D. Speed, size and persistence

Reason: Primary storage (RAM) is faster, smaller, and temporary, whereas secondary storage is slower, larger, and persistent.

2. Match the functions of network devices in List A to the corresponding network device in List B by writing the letter of the correct response beside the item number in the answer booklet provided.

List A

- (i) A device that is used in twisted pair cable as terminator.
- (ii) A device that connects computers in the network and relay signals from one computer to another.
- (iii) A device that connects two nodes point to point as if they were linked by a direct cable between them.
- (iv) A device that converts signals from analog to digital and vice versa.
- (v) A device that creates a physical link between the computers and the transmission media.
- (vi) A device that handles distortion from signals before sending them to another segment.
- (vii) A device used to connect different networks.
- (viii) A device that can be configured to provide access to wide area network.
- (ix) A device that selectively determine the appropriate segment for which a message is meant for delivery through address filtering.
- (x) An instrument with wireless hardware for detecting signals in the surrounding.

List B

- A. RJ45
- B. Antennae
- C. Bridge
- D. RJ terminator
- E. RJ40
- F. Gateway
- G. Hub
- H. Modem
- I. NIC
- J. Repeater
- K. Router
- L. Switch
- M. Terminator

Answers

- (i) D
- (ii) C
- (iii) G
- (iv) H
- (v) I
- (vi) J
- (vii) F
- (viii) K
- (ix) L
- (x) B

3. In the following items, write True for a correct statement and False for an incorrect statement.

i. Both ROM and RAM are Volatile.

False. ROM is non-volatile because it retains data even after the computer is turned off, while RAM is volatile.

ii. The CPU carries out all instruction executions.

True. The Central Processing Unit (CPU) is responsible for processing and executing instructions in a computer.

iii. Hypermedia is not a subset of multimedia.

False. Hypermedia is a subset of multimedia that integrates text, images, video, and hyperlinks.

iv. Notepad provides the basic standard for creating Webpages.

True. Notepad is a basic text editor often used for creating simple HTML documents.

v. Presentation software is very difficult to learn how to use.

False. Presentation software is designed to be user-friendly and is relatively easy to learn.

vi. It is possible to insert an image in an HTML document using tags.

True. HTML provides the ``<img>`` tag for inserting images into a webpage.

vii. Video is a powerful tool in presentations.

True. Video enhances presentations by making them more engaging and informative.

viii. A byte is a pattern of bits sufficient to store a character.

True. A byte, typically 8 bits, can represent a single character in most encoding systems.

ix. Pasteboard is a small blank space surrounding the printable area where objects are designed or edited.

True. Pasteboard in publishing software is the workspace surrounding the printable area of a page.

x. A JPEG is a standard for the storage and transfer of images that uses image compression techniques to minimize storage size.

True. JPEG is widely used for compressing and storing digital images efficiently.

4. A businessman investigated the possible income from his collections. He typed information into the following spreadsheet:

a.

i. Write the feature(s) used in row 1 to make the text appear as a single cell in columns A-D.

The feature used is "Merge and Center."

ii. Give the feature(s) used in cell C2.

The feature used is "Wrap Text."

iii. Give the description of the error message appeared in cell D5 and write the correct function which required to give the valid result.

The error in cell D5 (#VALUE!) occurs because the formula attempts to multiply incompatible data types.

The correct formula should be:

$=12367 * 0.05$

iv. Why is the answer in cell D6 not displayed correctly?

The answer in cell D6 is not displayed correctly because the value exceeds the cell width. To fix this, adjust the column width.

b. Describe any two special features of the spreadsheet program.

i. Autofill: Automatically fills cells with data based on a pattern or sequence.

ii. Conditional Formatting: Highlights cells based on specified conditions.

5.

a. Give the long form of the term "internet" and give its purpose.

Internet stands for Interconnected Network. Its purpose is to connect devices globally, enabling communication and data sharing.

b. Describe four advantages of using the internet.

- i. Communication: Instant messaging and video calls.
- ii. Information Access: Provides vast knowledge and educational resources.
- iii. Entertainment: Offers streaming services, gaming, and social media.
- iv. Business Opportunities: Facilitates e-commerce and online marketing.

c. Identify three basic elements considered when composing an email.

- i. Subject Line: Clearly states the purpose of the email.
- ii. Recipient Address: Specifies the intended recipients.
- iii. Content: Includes the main message or information.

6.

a. Describe five resources managed by an Operating System.

- i. Processor: Allocates CPU time to processes.
- ii. Memory: Manages RAM usage for programs.
- iii. Storage: Handles data storage and retrieval.
- iv. Input/Output Devices: Controls devices like keyboards and printers.
- v. Network: Manages network connections and data transfer.

b. Mention procedures that could be performed for the following operations:

- i. Restore deleted files to their original locations.  
Use the recycle bin or recovery tools to restore files.
- ii. Move multiple files or folders from one drive to another.  
Select the files, use cut or drag-and-drop, and paste them to the destination.

7.

a. Why HTML page can run on any Operating System?

HTML pages are platform-independent as they are interpreted by web browsers, which are available on all operating systems.

b. Mention two significances of HTML form.

- i. Collects user input for processing or storage.
- ii. Enables user interaction with a webpage.

c. Write the HTML codes which will display the following output on a web browser:

Type your First Name

Type your Last Name

```

<!DOCTYPE html>
<html>
<head>
<title>HTML Form</title>
</head>
<body>
<form>
<label>Type your First Name:</label>
<input type="text" name="firstname"><br><br>
<label>Type your Last Name:</label>
<input type="text" name="lastname"><br><br>
<input type="submit" value="Process">
</form>
</body>
</html>

```

8.

a. Write the function of standard toolbar.

The standard toolbar provides quick access to commonly used commands such as save, open, print, and undo.

b. Mention six parts of the Microsoft word application window.

- i. Title Bar
- ii. Ribbon
- iii. Status Bar
- iv. Navigation Pane
- v. Document Area
- vi. Scroll Bars

c. Explain two methods of proofreading a document prepared in Microsoft word.

- i. Spell Check: Automatically identifies and suggests corrections for spelling errors.
- ii. Grammar Check: Highlights grammatical mistakes and provides suggestions.

9.

a. Explain two advantages of using Desktop Publishing (DTP) over word processor.

- i. Advanced Design Features: Offers templates, color schemes, and layout tools for professional designs.
- ii. Multi-Page Layout: Simplifies handling large documents like magazines or books.

b. You are asked to prepare a school identification card by using a computer; give other two hardware and two software needed to complete your work.

Hardware:

- i. Printer

ii. Digital Camera

Software:

i. Graphic Design Software

ii. Database Software

c. Write steps required to create basic shape in PageMaker.

i. Open PageMaker and create a new document.

ii. Select the shape tool from the toolbox.

iii. Drag the cursor on the workspace to draw the desired shape.

iv. Customize the shape's properties such as color and size.

10. Describe five types of database models according to their data organizations.

i. Hierarchical Model

The hierarchical model organizes data into a tree-like structure where each record has a parent and can have multiple children. It is suitable for scenarios where data follows a one-to-many relationship, such as organizational charts.

ii. Network Model

The network model uses a graph structure where records are nodes, and relationships are edges. This model is ideal for representing many-to-many relationships, such as social networks or airline routes.

iii. Relational Model

The relational model organizes data into tables with rows and columns. Each table represents a relation, and the tables can be linked using primary and foreign keys. It is the most widely used model due to its simplicity and flexibility.

iv. Object-Oriented Model

The object-oriented model stores data in the form of objects, similar to object-oriented programming. It combines data and methods to manipulate it, making it suitable for applications like multimedia and CAD systems.

v. Document Model

The document model stores data in document formats such as JSON or XML. It is commonly used in NoSQL databases for unstructured or semi-structured data, such as web applications or content management systems.

11. a. Describe four roles of Information and Communication Technology in the society.

i. Enhancing Communication

ICT facilitates communication through emails, video conferencing, and instant messaging, making it easier to connect people globally. It supports business operations and personal relationships.

ii. Supporting Education

ICT provides access to online resources, virtual classrooms, and e-learning platforms. Students and teachers can access vast knowledge and collaborate effectively.

iii. Improving Healthcare

ICT supports telemedicine, electronic health records, and hospital management systems. It enhances the efficiency of healthcare delivery and patient care.

iv. Enabling Economic Development

ICT drives e-commerce, digital marketing, and online payment systems, contributing to economic growth by creating jobs and expanding markets.

b. Explain two effects of disposing of electronic equipment on the environment.

i. Soil and Water Pollution

Improper disposal of electronic equipment can release toxic substances such as lead and mercury, which contaminate soil and water, harming ecosystems and human health.

ii. Air Pollution

Burning electronic waste releases harmful gases like dioxins and furans, contributing to air pollution and respiratory issues among nearby communities.

12. Explain five advantages of the Internet in the society.

i. Access to Information

The internet provides unlimited access to information on various topics, helping individuals learn and stay informed about global events.

ii. Facilitating Communication

It enables instant communication through email, social media, and video calls, bridging distances and enhancing relationships.

iii. E-Commerce Opportunities

The internet supports online shopping, banking, and digital transactions, making trade more convenient and accessible.

iv. Entertainment

It offers a wide range of entertainment options, such as streaming movies, music, and gaming, catering to diverse preferences.

v. Promoting Innovation

The internet fosters innovation by providing platforms for sharing ideas, collaborating on projects, and accessing advanced tools and resources.

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**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2017**

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

i. The following are the types of data that can be used in the computer except

- A. Text
- B. Numeric
- C. Audio visual
- D. Physical
- E. Texture

Answer: D. Physical

Reason: Data used in computers typically includes text, numeric values, and multimedia formats (audio visual), but physical data (such as tangible objects) cannot be directly used by computers.

ii. Which one of the following is not an input device?

- A. Keyboard
- B. Mouse
- C. Scanner
- D. Microphone
- E. Projector

Answer: E. Projector

Reason: A projector is an output device used to display visual data on a larger screen, unlike input devices that send data to the computer.

iii. Which one among the following is not a modern way of disseminating information?

- A. Journal
- B. Internet
- C. Banner
- D. Television
- E. Whistle

Answer: E. Whistle

Reason: Whistle is a traditional method and not a modern way of disseminating information like internet, banners, or television.

iv. The following are examples of malicious codes except

- A. Computer Virus
- B. Trojan Horse
- C. Worms
- D. Firmware
- E. Malware

Answer: D. Firmware

Reason: Firmware is software programmed into hardware and is not considered malicious code like viruses, trojans, or worms.

v. The use of internet for selling and buying commodities is termed as

- A. E-mail accounting
- B. E-accounting
- C. E-commerce
- D. E-business
- E. C-selling and buying

Answer: C. E-commerce

Reason: E-commerce refers specifically to the buying and selling of goods and services online.

vi. Which one of the following is an example of a browser?

- A. AltaVista
- B. Yahoo
- C. Google Chrome
- D. MSN
- E. Bing

Answer: C. Google Chrome

Reason: Google Chrome is a web browser, while Yahoo and Bing are search engines. AltaVista is an outdated search engine, and MSN is a web portal.

vii. Which one of the following functions can return the sum of values in spreadsheet?

- A. =sum("C2:C6")
- B. =sum("C2/C6")
- C. =sum(C2:C6)
- D. =sum(C2/C6)
- E. =sum(C2.C6)

Answer: C. =sum(C2:C6)

Reason: This function syntax correctly uses a colon (:) to denote a range of cells to sum in a spreadsheet.

viii. A point of intersection between a row and a column in a spreadsheet is known as

- A. Cell
- B. Cell reference
- C. Cell address
- D. Address bar
- E. Label

Answer: C. Cell address

Reason: The cell address uniquely identifies the point of intersection, such as A1, B2, etc.

ix. The device that performs the function of signal modulation and demodulation is called

- A. Demodulator
- B. Modulator
- C. Repeater
- D. Modem
- E. Codec

Answer: D. Modem

Reason: A modem modulates and demodulates signals for transmission between computers over networks.

x. Which one of the following structure is used to store data items in relational database?

- A. Forms
- B. Tables
- C. Labels
- D. Macros
- E. Reports

Answer: B. Tables

Reason: Tables are the fundamental structures used to organize and store data in relational databases.

2. Match the following descriptions of computer peripherals in List A to their corresponding computer hardware in List B by writing the letter of the correct answer beside the item number in your answer booklet.

List A

- (i) A device that converts printed documents into electronic text without having to retype them
- (ii) A printer which has removable flower-like wheel consisting of spokes with embossed characters
- (iii) A printer that is expensive to buy but cheap to run
- (iv) Printers which are used in the point of sale terminals to print receipts and bar codes
- (v) A printer which is very expensive to run due to the higher cost of replacing the cartridges
- (vi) A device which looks like lever used to control a pointer on the screen
- (vii) A device that is used to enter data in form of speech in the computer
- (viii) A type of printer grouped into the impact printer that prints by striking its pins on the ribbon placed on the paper
- (ix) An input device which is usually found in a laptop computer
- (x) Devices which are used to print geographical, architectural, and engineering drawings

List B

- A. Daisy wheel printer
- B. Digital camera
- C. Dot matrix printer
- D. Inkjet printer
- E. Joystick
- F. Laser printer
- G. Microphone
- H. Mouse
- I. Photo printer
- J. Plotters
- K. Scanner
- L. Thermal printer
- M. Touch pad

Answers

- (i) K
- (ii) A
- (iii) D
- (iv) L
- (v) F
- (vi) E
- (vii) G
- (viii) C
- (ix) M
- (x) J

3. In the following items, write TRUE for a correct statement and FALSE for an incorrect statement.

i. Data manipulation is a new opportunity that the internet has made possible.

Answer: TRUE

ii. Hypertext markup language is a set of rules that control how data travels between server and client.

Answer: TRUE

iii. In Microsoft Word, it is not possible to perform mathematical calculations.

Answer: FALSE

iv. Graphic-based and Layout-based are types of desktop publishing software.

Answer: TRUE

v. Computers and transmission media require communication devices for the network to be fully operated.

Answer: TRUE

vi. A www is the world's largest library with billions of pages of materials to read.

Answer: TRUE

vii. Action query cannot insert new data into a data table.

Answer: FALSE

viii. Justification is a processing technique of adding extra spacing between words so that text fills the line length.

Answer: TRUE

ix. Thesaurus is an editing tool that helps the user to find words or phrases with similar meaning.

Answer: TRUE

x. Mail merge is a process of producing individual letters from a standard letter and data.

Answer: TRUE

4. a) By giving two examples, explain the term function.

A function is a predefined formula in a spreadsheet that simplifies complex calculations. It takes specific inputs to generate outputs automatically.

Examples:

- i. SUM(A1:A5) adds all values in cells A1 through A5.
- ii. AVERAGE(B1:B10) calculates the average of values in cells B1 through B10.

b) Describe three parts of the function defined in part (a) above.

- i. Function Name: Identifies the specific operation to be performed (e.g., SUM, AVERAGE).
- ii. Parentheses: Encloses the range or arguments required by the function.
- iii. Arguments: Refers to the input data or range of cells used in the function.

c) The formula listed in one of the cells is B4 \* \$C\$4. Name and give the difference between the two types of cell references used in this formula.

The two types of cell references are:

- i. Relative Reference (B4): Changes when the formula is copied to another cell.
- ii. Absolute Reference (\$C\$4): Remains constant regardless of where the formula is copied.

5. Write HTML codes that will display the webpage given below.

```
<!DOCTYPE html>
<html>
<head>
  <title>Provide Information</title>
</head>
<body>
  <h2>Please provide the following information</h2>
  <form>
    Name: <input type="text" name="name"><br><br>
    Gender: <input type="radio" name="gender" value="female"> Female
           <input type="radio" name="gender" value="male"> Male<br><br>
    Married: <input type="radio" name="married" value="yes"> Yes
            <input type="radio" name="married" value="no"> No<br><br>
    Comments: <textarea name="comments" rows="4" cols="30"></textarea><br><br>
            <input type="submit" value="Send">
  </form>
</body>
</html>
```

6. a) Explain the following terms as used in presentation:

i. Presentation program

A presentation program is software used to create visual and multimedia displays for communication, such as slideshows. Examples include Microsoft PowerPoint and Google Slides.

ii. Custom animation

Custom animation refers to effects applied to text, images, or objects in a presentation to create motion and highlight important details.

iii. Slide transition

Slide transition is the effect that occurs when moving from one slide to another during a presentation. Examples include fade, dissolve, and wipe transitions.

b) Write steps required in printing a presentation handout with slides on a page.

i. Open the presentation file.

ii. Go to the "File" menu and select "Print."

iii. Choose "Handouts" under the print layout options.

iv. Specify the number of slides per page (e.g., 2, 3, or 6).

v. Set the printer preferences (e.g., color, orientation).

vi. Click "Print" to generate the handouts.

c) Describe two advantages of using electronic presentations.

i. Enhanced engagement: Electronic presentations allow the use of multimedia elements such as images, animations, and videos to capture attention.

ii. Ease of editing: Content in electronic presentations can be easily modified, rearranged, or updated without recreating the entire presentation.

7. a) Give two characteristics of a multimedia system.

i. Integration of multiple media: A multimedia system combines text, graphics, video, and audio for effective communication.

ii. Interactivity: Users can interact with multimedia systems to navigate, input data, or receive feedback, enhancing the user experience.

b) Explain the importance of text, image, and sound in the presentation.

i. Text: Text conveys key information and supports visuals with detailed descriptions, such as bullet points or captions.

ii. Image: Images provide visual representation, enhancing comprehension and retention of complex ideas.

iii. Sound: Sound improves engagement and adds emphasis, such as background music or narration, making the presentation more dynamic and appealing.

8. a) Define the term database query.

A database query is a request or command issued to a database to retrieve or manipulate data based on specific conditions. Queries help filter and access relevant data from large datasets.

b) Using a diagram, explain three types of relationships between tables in a relational database.

i. One-to-One Relationship

Each record in one table is linked to only one record in another table. Example: A table of students with unique IDs linked to a table of their personal information.

ii. One-to-Many Relationship

A single record in one table can be associated with multiple records in another table. Example: A table of customers linked to multiple orders in an order table.

iii. Many-to-Many Relationship

Multiple records in one table can be related to multiple records in another table. Example: A table of students linked to a table of courses through an intermediate table.

c) A garage specialized in selling second-hand cars uses the given tables.

i. Identify the primary key for each table.

- Product Details Table: Eng No
- Sales Table: Sales ID

ii. Which field is a foreign key?

- Eng No in the Sales Table is the foreign key.

iii. What type of relation exists between the two tables?

- One-to-Many Relationship (One product can be sold in multiple sales).

iv. Write the data type for each field in the Sales Table.

- Sales ID: Text
- Eng No: Text
- Price: Currency
- Discount: Percentage

9. a) State four major categories of computer network elements (components).

- i. Network Interface Cards (NICs)
- ii. Switches
- iii. Routers
- iv. Cables and connectors

b) Explain the function of Gateway and Repeater devices in a computer network.

i. Gateway: A gateway connects two different networks, translating protocols to ensure seamless communication between them.

ii. Repeater: A repeater amplifies and regenerates signals to extend the network's reach without losing data quality.

c) Describe four importances of computer networks in an organization.

i. Resource Sharing: Networks allow sharing of printers, files, and other hardware, reducing costs.

ii. Communication: Employees can exchange information via emails, chats, and video conferencing.

iii. Centralized Management: Networks enable centralized data storage and easy management of resources.

iv. Efficiency: Networks improve productivity by providing quick access to information and resources.

10. Explain four functions of Operating System (OS) in a computer.

i. Process Management

The operating system manages processes by scheduling tasks, ensuring that the CPU is allocated efficiently. It handles process creation, execution, and termination while preventing conflicts between multiple processes. For example, when multiple programs like a browser and a word processor run simultaneously, the OS ensures they operate smoothly.

ii. Memory Management

The OS allocates memory to programs and ensures efficient memory utilization. It also handles memory swapping when programs exceed the available RAM, preventing crashes. For instance, when using multiple tabs in a browser, the OS ensures each tab gets sufficient memory.

iii. File Management

The OS organizes and manages files on storage devices, enabling users to read, write, and modify files. It also provides directory structures for data organization. For example, the OS ensures a saved document is accessible and secure.

iv. Device Management

The OS manages peripheral devices like printers, keyboards, and mice by acting as a bridge between the hardware and the user. For instance, when printing a document, the OS ensures the printer receives the correct data.

11. The introduction of computers to society reveals many benefits; explain four advantages acquired by developing countries such as Tanzania.

i. Improved Communication

Computers enable instant communication through emails, social media, and video conferencing, reducing reliance on traditional methods. For instance, Tanzanian businesses can communicate with international clients instantly.

ii. Access to Information

Computers provide access to vast online resources, such as research articles and educational content. For example, students in Tanzania can use e-learning platforms to study advanced topics.

iii. Increased Efficiency in Business

Businesses can automate processes like accounting and inventory management, reducing errors and saving time. For instance, Tanzanian shops use computerized Point of Sale (POS) systems for better efficiency.

iv. Job Creation

The computer industry creates jobs in software development, IT support, and data analysis. For example, Tanzanian tech startups are providing employment to local developers.

12. Describe five components needed by an organization to have internet connectivity.

i. Router

A router connects the organization to the internet by directing data packets to their destinations. It enables multiple devices to share a single internet connection.

ii. Modem

A modem converts digital data from the organization into signals compatible with the ISP and vice versa. It establishes the internet connection.

iii. Network Switch

A switch connects multiple devices within the organization, enabling them to share the internet connection provided by the router.

iv. Internet Service Provider (ISP)

The ISP provides the actual internet service, allowing the organization to access online resources. For example, in Tanzania, ISPs like Vodacom or Airtel offer connectivity plans.

v. Cables and Connectors

Cables such as Ethernet cables connect devices like routers and computers to the network, ensuring reliable internet access.

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**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2016**

**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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1.

i. A network hardware device that communicates with computers using telephone lines is called:

- A. Switch
- B. Router
- C. Modem
- D. Gateway
- E. NIC

Correct Answer: C. Modem

Reason: A modem modulates and demodulates signals for communication over telephone lines, while switches, routers, gateways, and NICs handle different network functions not specific to telephone lines.

ii. Computer specialists working in software houses are known as:

- A. Hackers
- B. Programmers
- C. Engineers
- D. Technicians
- E. Administrators

Correct Answer: B. Programmers

Reason: Programmers specialize in writing and maintaining software, unlike engineers or administrators who handle other responsibilities.

iii. Which of the following keyboard keys executes the function of 'Save as' command in most programs?

- A. F10
- B. F11
- C. F12
- D. F9
- E. F8

Correct Answer: C. F12

Reason: F12 is the default shortcut for the "Save As" function in most applications, while the other keys serve different functions.

iv. The process of restarting a computer is called:

- A. Cold booting
- B. Warm booting
- C. Hard booting
- D. Simple booting
- E. Permanent booting

Correct Answer: B. Warm booting

Reason: Warm booting restarts the computer without turning off the power, unlike cold booting which starts from a powered-off state.

v. The equivalent formula for =SUM(A10:A13) without the use of the function is:

- A.  $A10+A12+A13$
- B.  $A10+A11+A13$
- C.  $=A10+A11$
- D.  $A10+A12+A13$
- E.  $=A10+A11+A12+A13$

Correct Answer: E.  $=A10+A11+A12+A13$

Reason: The SUM function can be replaced with the addition of each cell value explicitly.

vi. A software program that enables a user to locate and retrieve specific information on the WWW is known as:

- A. Internet
- B. Google
- C. Yahoo
- D. Application software
- E. Website

Correct Answer: B. Google

Reason: Google is a widely-used search engine, whereas options like Yahoo are less universally recognized.

vii. Calculations, comparison, and logical operations in the CPU are performed at the:

- A. Calculation unit
- B. Arithmetic unit
- C. Arithmetic and logical unit
- D. Computer calculator
- E. Calculation and logical unit

Correct Answer: C. Arithmetic and logical unit

Reason: The Arithmetic and Logical Unit (ALU) is the specific part of the CPU responsible for these operations.

viii. What is the meaning of the term workbook as used in spreadsheet?

- A. Collection of worksheets
- B. Collection of spreadsheets
- C. Collection of cells
- D. Collection of sheets
- E. Collection of rows and columns

Correct Answer: A. Collection of worksheets

Reason: A workbook consists of multiple worksheets, whereas rows, columns, or sheets refer to individual elements.

ix. Computers which are characterized by superior hardware and software were developed in the:

- A. First generation
- B. Second generation
- C. Third generation
- D. Fourth generation

E. Fifth generation

Correct Answer: E. Fifth generation

Reason: Fifth-generation computers are advanced with AI and superior capabilities compared to earlier generations.

x. On a personal computer, all processing functions are contained on a single electronic chip called:

A. Arithmetic logical unit

B. Microprocessor

C. Transistor

D. Integrated circuits

E. Silicon chip

Correct Answer: B. Microprocessor

Reason: Microprocessors integrate all functions of a CPU, unlike transistors or individual ALUs.

## 2. Matching Items

List A:

- i. Maintain and troubleshoot network-related problems
- ii. Answer user inquiries regarding computer software or hardware operation to resolve problems
- iii. Set up security measures needed to control access to information
- iv. Monitor access and use of internet connection by enforcing security measures
- v. Keep up-to-date computer records (log files) of all information processing activities
- vi. Troubleshoot computer hardware and software-related problems
- vii. Customize commercial application packages to suit the organization's needs
- viii. Maintain and update software to meet day-to-day requirements while overcoming challenges
- ix. Create daily backup files, test page navigation links, and moderate blog comments
- x. Make sure that all tasks in the IT department are done correctly and on time

List B:

- A. Computer operator
- B. Computer technician
- C. System analyst
- D. Computer programmer
- E. Computer trainer
- F. Information system manager
- G. Database administrator
- H. Webmaster
- I. Network administrator
- J. Administrator

Answers:

- i. I

- ii. B
- iii. F
- iv. F
- v. G
- vi. I
- vii. C
- viii. E
- ix. H
- x. J

3. True or False

i. Laser and ink jet printers are examples of non-impact printers.

T

ii. Slide show view is the default view from which you can manage your presentations slide order as well as edit specific slides.

T

iii. Processing speed in microprocessors is measured in hertz/MegaHertz.

T

iv. Utility software is a kind of system software designed to configure and maintain the computer.

T

v. In HTML, logical tags specify exactly how the text will look.

F

vi. The fastest, most powerful, and most expensive category of computers is called microcomputer.

F

vii. Every Microsoft access table requires a primary key field.

T

viii. Cold temperatures are not as dangerous to a computer as overheating is.

T

ix. Word processors are not limited for working with text.

T

x. In any document, the left and right margins must be the same.

F

4. a. Define the term database

A database is a systematic collection of data that is organized in a way that allows easy access, management, and updating. It enables users to store, retrieve, and analyze data efficiently.

b. The database below contains data about items that have been ordered from various suppliers

Table copied as per the image

i. State the data types of the fields in the table given above

CODE: Text

SUPPLIER: Text

DELIVERY DATE: Date

PRICE: Currency

ii. If the search condition {CODE=5620} AND {PRICE<100} is used, write down the output using only the supplier field

Output: OM81

iii. Write down a search condition that will search for all items with a price more than \$50 and delivered in June

Search condition: {PRICE>50} AND {DELIVERY DATE>=6/1/2006 AND DELIVERY DATE<=6/30/2006}

5. a. What is a computer keyboard

A computer keyboard is an input device that allows users to input data, commands, and interact with the computer by pressing keys.

b. List five types of keys found on a computer keyboard. Give an example of each type

i. Alphanumeric keys - Example: A, B, C, 1, 2, 3

ii. Function keys - Example: F1, F2

iii. Control keys - Example: Ctrl, Alt

iv. Navigation keys - Example: Arrow keys, Page Up/Down

v. Numeric keypad - Example: Numbers 0-9

c. With examples, describe two disadvantages of automated production

i. High initial cost: Automated systems require significant investment in machinery and software, e.g., robotic arms in automobile production

ii. Job displacement: Automation reduces the need for human labor, leading to unemployment in sectors such as manufacturing

d. Mention three functional elements of the central processing unit and explain the function of each element

i. Arithmetic Logic Unit (ALU): Performs arithmetic and logical operations

ii. Control Unit (CU): Directs operations within the computer by interpreting instructions

iii. Registers: Temporarily store data and instructions for processing

e. Give four types of application software

- i. Word processors
- ii. Spreadsheets
- iii. Presentation software
- iv. Database management systems

f. Explain two effects of disposing electronic equipment to the environment

- i. Pollution: Toxic substances such as lead and mercury can leak into the soil and water
- ii. Waste accumulation: E-waste contributes to growing landfills, taking up valuable space

6. a. Give four examples of desktop publishing software available in the market today

- i. Adobe InDesign
- ii. Microsoft Publisher
- iii. QuarkXPress
- iv. Scribus

b. Explain four reasons why Desktop publishing (DTP) is more preferred than a word processor

- i. Advanced design tools: DTP offers tools for creating complex layouts that are not available in word processors
- ii. High-quality printing: DTP software supports high-resolution printing
- iii. Integration of multimedia: Allows insertion of images, videos, and graphics seamlessly
- iv. Customization: Provides flexibility to adjust spacing, fonts, and alignment for professional results

7. (a) Give four examples of desktop publishing software available in the market today

- i. Adobe InDesign
- ii. Microsoft Publisher
- iii. QuarkXPress
- iv. CorelDRAW

b. Explain four reasons why Desktop Publishing (DTP) is more preferred than a word processor

i. Better Layout and Design Tools.

DTP software provides advanced tools for creating complex layouts, such as brochures and magazines, which are not feasible in a word processor. For example, it allows multiple layers and precise control of elements.

ii. High-Quality Output.

DTP software is specifically designed to produce print-ready files with high resolution. This ensures professional output for materials such as posters and catalogs.

iii. Support for Multiple File Formats.

DTP applications support a wide range of file formats for images, text, and graphics, enabling seamless integration of multimedia. This makes it superior for projects involving high visual content.

iv. Enhanced Productivity

By providing specialized templates and automation tools, DTP software speeds up the creation process and reduces the time required to format and arrange content. This is essential for professionals working under tight deadlines.

8. (a) What formula was used to find the total time spent on the Internet?

=SUM(B5:B9)

b. What formula was used to find the average time spent on the Internet?

=AVERAGE(B5:B9)

c. Using absolute referencing, what formula was used to find the sub-total?

=B5\*\$G\$5

d. Using absolute referencing, what formula was used to find VAT?

=D5\*\$H\$5

9. (a) Explain two stages of Multimedia application development

i. Planning: In this stage, the goals of the multimedia application are identified, and the resources required for its development are allocated. This includes defining the content, choosing the platform, and organizing the layout.

ii. Development: This stage involves creating and integrating the various multimedia elements such as text, graphics, video, and sound into a cohesive application using specialized software.

b. Describe two categories of computer memory

i. Primary Memory: This refers to volatile memory such as RAM, which temporarily stores data and instructions that the CPU needs during processing.

ii. Secondary Memory: This refers to non-volatile memory such as hard drives and SSDs, which store data permanently for long-term access.

c. Explain how self-employment can be achieved by using computer or other ICT devices

ICT devices enable individuals to start small-scale businesses, such as freelance graphic design, online content creation, and digital marketing. They also allow for remote working opportunities and access to global platforms where individuals can sell their services or products.

10. "The internet is a harmful tool to man". What are your opinions? Describe only four points.

i. Spread of misinformation

The internet has made it easier to spread false or misleading information, which can lead to confusion, panic, or harm to society. For instance, during health crises, false remedies and conspiracy theories often go viral, causing people to act on harmful advice.

ii. Cyberbullying and harassment

Social media platforms and other internet-based tools are often misused for cyberbullying and harassment. This has led to psychological distress for many individuals, especially young people, and even contributed to extreme outcomes like suicide.

iii. Addiction and reduced productivity

Excessive use of the internet, especially for entertainment purposes like gaming and social media, can lead to addiction. This reduces time spent on productive activities and affects relationships and mental well-being.

iv. Privacy and security risks

Personal information shared online can be accessed by malicious individuals or organizations. This has led to identity theft, financial fraud, and unauthorized surveillance, posing significant risks to individuals and businesses.

11. Analyze four strengths and four weaknesses of the cables used for configuring communication networks.

i. Strengths

a. High-speed data transfer: Cables such as fiber optics allow for high-speed data transmission, which is essential for modern communication.

b. Reliability: Wired connections are less prone to interference compared to wireless connections, ensuring consistent performance.

c. Security: Data transmitted via cables is harder to intercept compared to wireless networks, providing better security.

d. Large bandwidth: Cables can support large amounts of data, making them suitable for high-traffic applications like video streaming.

ii. Weaknesses

a. High installation cost: Setting up wired networks requires significant investment in cabling and infrastructure.

b. Limited mobility: Devices connected via cables cannot be moved freely, reducing flexibility.

c. Maintenance challenges: Cables are prone to wear and tear, which can lead to frequent maintenance or replacement.

d. Environmental susceptibility: Cables can be affected by physical factors like water, rodents, or extreme weather conditions, disrupting network performance.

12. With examples, explain three types of lists used in HTML including the definition of the term HTML.

i. Definition of HTML

HTML (HyperText Markup Language) is the standard language used to create web pages and applications. It structures the content on the web using tags and attributes.

## ii. Types of Lists in HTML

### a. Ordered List (<ol>)

An ordered list is used when the items in the list need to be displayed in a specific sequence. The items are usually numbered. For example:

```
``html
<ol>
  <li>Step 1: Turn on the computer</li>
  <li>Step 2: Open the browser</li>
  <li>Step 3: Access the website</li>
</ol>
``
```

### b. Unordered List (<ul>)

An unordered list is used when the items in the list do not follow a specific sequence. The items are usually marked with bullet points. For example:

```
<ul>
  <li>Apples</li>
  <li>Bananas</li>
  <li>Cherries</li>
</ul>
```

### c. Description List (<dl>)

A description list is used to display a list of terms along with their descriptions. For example:

```
<dl>
  <dt>HTML</dt>
  <dd>A language for structuring web content.</dd>
  <dt>CSS</dt>
  <dd>A language for styling web pages.</dd>
</dl>
```

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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.

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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.

(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

- (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.

Code\_Num: 14001, 13425, 14010, 13416, 13504, 14005

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

- 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.

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**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2014**

**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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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.

(i) Data can be arranged in ascending or descending order by using the sort command from:

- A. Table menu
- B. Data menu
- C. Tools menu
- D. Sort menu
- E. Format menu

Answer: B. Data menu

Reason: The data menu in applications like Excel provides sorting options for arranging data in ascending or descending order.

(ii) A file created using plain texts using NotePad or DOS editor will have a file extension ending with:

- A. .Doc
- B. .Dat
- C. .Html
- D. .Exe
- E. .Txt

Answer: E. .Txt

Reason: Files created in plain text editors like Notepad are saved with the .txt extension by default.

(iii) System programs which provide a useful service to the user of the computer by providing facilities for performing common tasks are known as:

- A. User programs
- B. Utility programs
- C. Software programs
- D. Simple programs
- E. Computer programs

Answer: B. Utility programs

Reason: Utility programs provide essential tools for system maintenance and performing routine tasks like file management and virus scanning.

(iv) Databases with fields or records arranged in groups resembling a family tree are called:

- A. Hierarchical
- B. Distributed
- C. Non-hierarchical
- D. Relational
- E. Non-relational

Answer: A. Hierarchical

Reason: Hierarchical databases use a tree-like structure to organize data in parent-child relationships.

(v) The computer generation which is characterized by electronic devices called integrated circuits (ICs) is known as:

- A. Fifth generation
- B. Second generation
- C. Fourth generation
- D. First generation
- E. Third generation

Answer: E. Third generation

Reason: The third generation of computers used ICs, which replaced transistors and improved speed and efficiency.

(vi) The physical hardware parts of a computer are often referred to as:

- A. Insiders
- B. Devices
- C. Hardware
- D. Software
- E. Generators

Answer: C. Hardware

Reason: Hardware refers to the tangible components of a computer, such as the CPU, monitor, and keyboard.

(vii) A mouse that uses radio or infrared waves to transmit data is called:

- A. A trackball mouse
- B. A ball mouse
- C. A wireless mouse
- D. A mechanical mouse
- E. A Bluetooth mouse

Answer: C. A wireless mouse

Reason: A wireless mouse uses radio frequency or infrared technology to communicate with the computer without cables.

(viii) First generation computers were very large physically and used thousands of electronic gadgets called:

- A. Transistors
- B. Silicon chips
- C. Thermionic valves
- D. Integrated circuits
- E. Diodes

Answer: C. Thermionic valves

Reason: First-generation computers relied on vacuum tubes (thermionic valves) for processing and storage.

(ix) The device that performs the function of signal modulation and demodulation is called a:

- A. Demodulator
- B. Modulator
- C. Router

D. Modem

E. Decoder

Answer: D. Modem

Reason: A modem modulates digital signals into analog for transmission and demodulates received analog signals back into digital form.

(x) The fastest, most powerful, and most expensive category of computers is the:

A. Laptop

B. Mainframe

C. Minicomputer

D. Microcomputer

E. Supercomputer

Answer: E. Supercomputer

Reason: Supercomputers are designed for high-speed processing and solving complex problems, making them the fastest and most powerful computers.

2. Match the meanings in List A with their corresponding terminologies in List B by writing the letter of the correct option beside the item number.

List A:

(i) The process of converting data signals by superimposing them on an analogue carrier for transmission via a telephone line.

(ii) The process used at the receiver to recover the original signal coming from the sender end in modulated form.

(iii) The technique of combining several analog signals/messages or digital message streams into one signal for transmission as a single message.

(iv) The maximum amount of data that a transmission medium can carry at any given time.

(v) A digital signal that is generated and applied to the transmission medium directly without modulation.

(vi) Transmission of data over an analog medium by using frequency differences to represent different data signals.

(vii) Data communication that occurs only in one direction of the communication medium.

(viii) Data communication that allows a two-way flow of data but one direction at a time.

(ix) Data communication that allows simultaneous flow of data in both directions of the medium.

(x) The weakening of a data signal over a communication medium with increasing distance.

List B:

A. Baseband transmission

B. Broadband transmission

C. Demultiplexing

D. Half duplex transmission

E. Full duplex transmission

F. Multiplexing

- G. Signal modulation
- H. Signal demodulation
- I. Signal interference
- J. Signal retransmission
- K. Duplex transmission
- L. Simplex transmission
- M. Network transmission

Solution:

- (i) G
- (ii) H
- (iii) F
- (iv) A
- (v) B
- (vi) G
- (vii) L
- (viii) D
- (ix) E
- (x) I

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

- (i) An action query is the most common type of query used for searching and analyzing data in one or more tables. F
- (ii) A spreadsheet has three main components, namely worksheets, databases, and cells. F
- (iii) A peer-to-peer network does not depend on a central server. T
- (iv) Online storage means that stored data is directly accessible for processing. T
- (v) Auto content wizard includes animations, transitions, and builds. F
- (vi) Optical Character Recognition converts scanned images into text that can be edited. T
- (vii) Inkjet printer is an example of an impact printer. F
- (viii) Data is entered into the computer by using keying devices only. F
- (ix) The operating system allocates RAM among programs that are running. T
- (x) Network users can open shared files but they cannot change those files. T

4. (a) Briefly explain three slide viewing options in PowerPoint.

- Normal View: This is the default view for creating and editing slides. It displays thumbnails of all slides in a pane alongside the main slide for editing.
- Slide Sorter View: This view shows all slides as thumbnails, allowing easy rearrangement and organization of slides.
- Slide Show View: Displays slides in full-screen mode, exactly as they will appear during a presentation.

(b) Mention four ways which can be used in creating a new presentation in PowerPoint.

- Using a Blank Presentation: Start with an empty presentation and add slides, text, and designs.
- Using Templates: Select pre-designed templates that include slide layouts, themes, and formatting.
- Importing from Other Applications: Import content from Word or Excel into PowerPoint slides.
- Copying and Modifying Existing Presentations: Use an existing presentation and modify it to suit new content.

5. The figure below shows data entered into a spreadsheet application.

(a) What is the cell reference of the active cell?

Answer: The active cell reference is the one with a highlighted border. If unspecified, assume a hypothetical active cell, e.g., C3.

(b) Which cell will become the active cell if the Home button on the keyboard is pressed?

Answer: Cell A1

Reason: Pressing the Home button moves the active cell to the first cell in the row, and pressing Ctrl + Home moves to A1.

(c) Write the formula used in cell B7 to calculate the total for February.

Answer: =SUM(B2:B6)

Reason: This formula calculates the sum of the values in cells B2 through B6.

(d) Apart from performing calculations, state any other two functions of a spreadsheet.

- Data Analysis: Spreadsheets provide tools such as charts and pivot tables for analyzing data.
- Database Management: Spreadsheets allow sorting, filtering, and storing data for record-keeping purposes.

6. (a) The snapshot below shows the features of an electronic word processor. Label all features indicated by arrows.

- A: Title Bar - Displays the title of the document or application.
- B: Menu Bar - Contains menus for different commands and functions such as File, Edit, View, etc.
- C: Toolbar - Provides quick access to commonly used commands and tools.
- D: Ruler - Allows alignment and setting of tabs and margins for the document.
- E: Text Area - The main working area where text and other elements are input and edited.
- H: Scroll Bar - Allows navigation through the document vertically or horizontally.

(b) Explain the functions of C, A, B, and H features.

- C: Toolbar

Provides shortcuts to frequently used commands such as saving, opening, printing, or formatting text, improving efficiency.

- A: Title Bar

Displays the name of the current document and application, helping the user identify the open file.

- B: Menu Bar

Contains organized menus that group related commands, such as editing, viewing, and formatting options.

- H: Scroll Bar

Allows the user to scroll through the document to view different parts, especially when the document is larger than the screen size.

7. (a) Explain why there is concern at the disposal of Nickel-cadmium batteries.

Nickel-cadmium batteries contain toxic heavy metals like cadmium, which can leach into soil and water, causing environmental pollution and health hazards when improperly disposed of.

(b) Describe five advantages of automation.

- Increased Efficiency: Automation speeds up processes by reducing the time needed for repetitive tasks.
- Consistency: Automated systems maintain a consistent level of quality and performance.
- Cost Reduction: Reduces the need for manual labor, lowering operational costs.
- Improved Accuracy: Minimizes human errors in tasks such as data entry and manufacturing.
- Enhanced Safety: Reduces risks in hazardous work environments by delegating dangerous tasks to machines.

8. (a) What are the three main purposes of desktop publishing software?

1. Designing Publications: Enables users to create professional documents like brochures, magazines, and newsletters.

2. Layout Customization: Provides tools to arrange text, images, and graphics on a page for an appealing layout.

3. Improving Document Presentation: Enhances the visual quality of documents with features like color schemes, styles, and formatting.

(b) You have been requested as an expert in DTP to design a five-page school magazine. The magazine layout should display the school logo at the top of every page. Explain how you would do this.

- Open a new document in the DTP software and set the page layout (e.g., A4 size).
- Insert the school logo at the top of the first page and position it using the toolbar.
- Use the "Header" option to place the logo in the header area. This ensures the logo appears consistently on all pages.

- Design the layout of each page, including text boxes, images, and columns for content.
- Save the document and review each page to ensure the logo is correctly aligned and visible.

9. (a) What is the purpose of a database?

A database organizes and stores data efficiently, allowing easy access, management, and retrieval of information.

(b). (i) Describe any two principal ways of organizing a database.

1. Hierarchical Organization: Data is arranged in a tree-like structure with parent-child relationships, suitable for structured data.
2. Relational Organization: Data is organized in tables linked by relationships, making it easy to retrieve and manipulate.

(ii) Write down the criteria you would use to display employee details from a payroll database who earn between 900 and 1800.

Criteria: SELECT records where the "Salary" field value is  $\geq 900$  and  $\leq 1800$ .

(c) Outline three benefits that computer networks provide to the users.

- Resource Sharing: Users can share printers, files, and internet connections, reducing costs.
- Communication: Facilitates instant communication through email, messaging, and video conferencing.
- Data Accessibility: Allows users to access shared files and data from different locations.

(d) Identify two types of wireless media that are used to link networks.

- Wi-Fi
- Bluetooth

10. Elaborate how data recovery, data compression, backup, and file defragmentation utility programs function.

- Data Recovery  
This utility helps restore lost or corrupted files due to accidental deletion, hardware failure, or software issues. It works by scanning storage devices for recoverable files and restoring them to a specified location. For example, data recovery tools like Recuva are commonly used after accidental file deletions.
- Data Compression

- This reduces the size of files by removing redundant data, making them easier to store and transmit. Compressed files save storage space and reduce transmission time. Examples include ZIP and RAR file formats, which are compressed using tools like WinRAR or 7-Zip.
- Backup  
This utility creates copies of important data to protect against data loss due to hardware failures, cyberattacks, or accidental deletion. Backups can be stored on external drives or cloud storage services. For instance, using Google Drive to back up documents ensures data availability even if the original files are lost.
- File Defragmentation  
This process reorganizes scattered file fragments on a hard disk, arranging them sequentially to improve read and write speeds. It enhances system performance by reducing the time required to access files. Windows Disk Defragmenter is an example of such a utility.

11. Why should a school/institution have a website? Describe by giving four reasons.

- Improved Communication  
A website provides a platform for schools to share announcements, schedules, and updates with students, parents, and staff. For example, posting exam timetables or event schedules on the website ensures timely communication.
- Global Accessibility  
Websites enable schools to showcase their programs and achievements to a global audience. This is particularly beneficial for attracting international students or partnerships. For instance, international schools often highlight their curriculum online.
- Enhanced Learning Resources  
A website serves as a repository for educational materials like lecture notes, assignments, and tutorials. This promotes e-learning and supports students' academic growth. Many institutions integrate learning management systems into their websites for this purpose.
- Promotes Transparency and Accountability  
A website allows schools to share information such as fee structures, admission criteria, and policies, fostering transparency. For example, parents can access fee breakdowns and school policies online without needing physical visits.

12. With examples, give a detailed elaboration of the classification of operating systems based on the number of users and number of tasks.

- Based on Number of Users
  - Single-User Operating Systems
- Designed to allow one user at a time to access system resources. These are suitable for personal computers. Examples include Microsoft Windows 10 and macOS.
  - Multi-User Operating Systems
- Enable multiple users to access the system simultaneously, often through networked terminals. These systems ensure resource allocation and security for multiple users. Examples include UNIX and Windows Server.
- Based on Number of Tasks
  - Single-Tasking Operating Systems
- Allow only one task to run at a time. These are typically used in simpler devices where multitasking isn't required. For example, DOS is a single-tasking operating system.
  - Multi-Tasking Operating Systems
- Capable of running multiple tasks simultaneously. They manage CPU time allocation for each task to ensure efficiency. Examples include Windows and Linux, which allow users to run applications like web browsers, word processors, and media players simultaneously.

By combining these classifications, operating systems are tailored to meet specific user and task requirements, ensuring optimal performance in different environments.

**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.

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(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.

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036/1

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2012**

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

(i) Which among the following is NOT a file format for Graphics and Images?

- A. bmp
- B. jpg
- C. png
- D. gif
- E. doc

Answer: E. doc

Reason: The "doc" file format is used for text documents, not for graphics or images.

(ii) The computers which are used for processing data and performing complex mathematical calculations are known as:

- A. Supercomputers
- B. Microcomputer
- C. Mainframe computers
- D. Minicomputers
- E. Complex computers

Answer: A. Supercomputers

Reason: Supercomputers are designed to handle complex calculations and large-scale data processing.

(iii) Which one of the following is an example of a mixed cell reference in a spreadsheet?

- A. A1
- B. \$A1
- C. A\$1
- D. \$A\$1
- E. A1:A10

Answer: B. \$A1

Reason: A mixed cell reference locks either the row or the column; "\$A1" locks the column.

(iv) Cells A4, A7, C4, C5, and C7 contain values 5, 5, 6, and 3 respectively. Then in cell D4, formula =C5\*(A4+A7+C4/C7) is entered. What will be the value for cell D4?

- A. 28
- B. 16
- C. 18
- D. 14
- E. 20

Answer: D. 14

Reason: The formula calculates as follows:  $=6*(5+5+6/3) = 6*(5+5+2) = 6*14 = 14$ .

(v) The following are features of the PageMaker publication window except:

- A. Toolbox

- B. Pasteboard
- C. Rulers
- D. Control palette
- E. Tool bar

Answer: E. Tool bar

Reason: Toolbars are generally not a feature of PageMaker publication windows.

(vi) Which of the following devices must be used to connect two computers for sharing of data?

- A. USB
- B. NIC
- C. Modem
- D. UPS
- E. Gateways

Answer: B. NIC

Reason: A Network Interface Card (NIC) enables computers to connect and share data over a network.

(vii) The unique identifier of records in databases is represented by:

- A. Primary key
- B. First key
- C. Foreign key
- D. Candidate key
- E. Permanent key

Answer: A. Primary key

Reason: A primary key uniquely identifies each record in a database table.

(viii) Which of the following is not a word processor?

- A. Word star
- B. Word wrap
- C. Word
- D. Word pad
- E. Apple works

Answer: B. Word wrap

Reason: Word wrap is a feature in word processors, not a word processor itself.

(ix) The programs designed to perform specific tasks are called:

- A. System software
- B. Utility programs
- C. Computer programs
- D. Application software
- E. Special programs

Answer: D. Application software

Reason: Application software is created to perform specific tasks such as editing, accounting, or browsing.

(x) Peripheral devices are connected to the system unit using special cables known as:

- A. Interface cables
- B. Ports cables
- C. USB cables
- D. Twisted cables
- E. Device cables

Answer: A. Interface cables

Reason: Interface cables are used to connect peripheral devices like printers and scanners to the system unit.

2. Match the following functions of network devices in List A to their corresponding network hardware in List B by writing the letter of the correct option beside the item number.

List A

- (i) Determines selectively through address filtering the appropriate network segment for which a message is meant for delivery.
- (ii) Converts an analogue signal to digital form for transmission on a digital medium.
- (iii) A device that is configured to provide access to a wide area network or Internet.
- (iv) Connects computers to the network so that signals can be transmitted from one computer to another without filtering.
- (v) Converts digital signals to analogue signals and vice versa.
- (vi) Creates a physical link between the computer and the transmission media.
- (vii) Transmitting and receiving antenna which facilitates communication very fast.
- (viii) Interconnects different networks and directs data transfer from source to destination.
- (ix) A device that recognizes signals transmitted in a channel and sends it directly to the address node without broadcasting it.
- (x) Detects signals in the surrounding which are transmitted in the form of radio waves, infrared waves, or microwaves.

List B

- A. Wireless access point
- B. Switch
- C. Gateway
- D. Router
- E. Repeater
- F. Bridge
- G. Hub
- H. Modem
- I. Codec
- J. Network Interface Card
- K. Coaxial cable
- L. Data bus
- M. Universal serial bus

Solution:

- (i) B
- (ii) H
- (iii) D
- (iv) G
- (v) H
- (vi) K
- (vii) A
- (viii) C
- (ix) B
- (x) A

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

- (i) Most website pages on the Internet are currently written in programming language. T
- (ii) Any text or alphanumeric characters entered in a cell are viewed as labels. T
- (iii) Modern communication cannot take place in half-duplex mode. F
- (iv) Function keys are used for tasks that frequently occur in programs. T
- (v) A cathode ray tube monitor looks and works much like a television screen. T
- (vi) Kerning refers to fixing of particular pairs of numbers that are too close or far apart from each other. F
- (vii) A scanner is an example of output devices. F
- (viii) A parallel interface cable can transmit eight bits of data at once. T
- (ix) Windows 95 was popular because it featured cooperative multitasking. T
- (x) Notepad has got very limited formatting features. T

4. (a) Mention four safety precautions for each type of computer component given below that should be observed to provide a conducive working environment in a computer laboratory.

(i) Hardware:

1. Keep hardware in a dust-free environment.
2. Avoid overloading power outlets to prevent electrical damage.
3. Use surge protectors to safeguard against voltage spikes.
4. Handle components with care to avoid physical damage.

(ii) Software:

1. Regularly update antivirus software to prevent malware infections.
2. Avoid installing pirated or unverified software.
3. Backup data regularly to prevent data loss.
4. Ensure software compatibility before installation.

(iii) Humanware:

1. Ensure proper seating posture to prevent strain injuries.
2. Adjust screen brightness to reduce eye strain.

3. Limit usage time to avoid fatigue.
4. Maintain proper ventilation to ensure comfort in the lab.

(b) Describe the two major differences between primary storage devices and secondary storage devices, giving one example for each type.

1. Primary storage (e.g., RAM): Temporary storage that holds data and instructions currently in use.
2. Secondary storage (e.g., hard drive): Permanent storage used for saving data and programs for future use.

5. (a) A Telephone Company produces paper-based directories. It has decided to offer directory information to customers via a website.

(i) Give two advantages to the telephone company in doing this.

1. Reduces costs associated with printing and distributing paper directories.
2. Provides real-time updates to directory information.

(ii) What advantage does this new system offer to the customer?

The customer can access updated directory information conveniently from anywhere with internet access.

(iii) Give two disadvantages to the customer that the new system will have.

1. Customers without internet access will face difficulties accessing the information.
2. There may be security concerns with sharing personal directory details online.

(b) Describe any four career opportunities that are available in the computing field.

1. Software Developer: Designing and creating software applications.
2. Data Analyst: Analyzing and interpreting complex data.
3. Cybersecurity Specialist: Protecting systems from security threats.
4. Network Administrator: Managing and maintaining computer networks.

6. (a) An estate agent keeps a file of properties for sale on a computer. Some of the information stored on each property is shown in the table below:

| Code   | Type            | Class | Price     | Number of Bedrooms |
|--------|-----------------|-------|-----------|--------------------|
| MSL123 | House           | D     | 142,000   | 3                  |
| MSL917 | Storey building | B     | 1,000,000 | 2                  |
| MSL134 | House           | S     | 500,000   | 4                  |
| MSL912 | Storey building | S     | 2,000,000 | 2                  |

(i) State how many records are there in the file?

There are 4 records in the file.

(ii) State the names of the fields available in the table above.

Code, Type, Class, Price, Number of Bedrooms.

(iii) Which of the above fields can be set as a primary key? Why?

The "Code" field can be set as a primary key because it uniquely identifies each record in the table.

6.

(b) Simba – Traders employs 300 workers. One of their goals is to place the workers according to their training and skills. They believe that the experience of the employees must be utilized and expanded in their work. The firm has just identified a new project in which employees between the ages of 25 and 30 with training and experience as plumbers may be employed to advantage. Name five fields and the appropriate data type in a database that will definitely be used in a query to select the names of workers who can be assigned to the project.

1. Name (Text)
2. Age (Number)
3. Experience (Text/Number)
4. Training/Skills (Text)
5. Position/Job Role (Text)

7.

(a) State the output of the following HTML code after browsing:

```
<html>
<title>Form II examinations</title>
<body>
<h1>Background</h1>
<Table>
<tr>
<th>School attended</th><th>Period of attendance</th><th>Qualifications acquired</th>
</tr>
<tr>
<td>Nyali Primary School</td><td>1990-1995</td><td>Certificate</td>
</tr>
<tr>
<td>Nyali High School</td><td>1995-2000</td><td>Certificate</td>
</tr>
<tr>
<td>Kigoma Secondary School</td><td>2000-2002</td><td>CSEE</td>
</tr>
</Table>
</body>
```

</html>

Output:

Form II examinations

Background

| School attended         | Period of attendance | Qualifications acquired |
|-------------------------|----------------------|-------------------------|
| Nyali Primary School    | 1990-1995            | Certificate             |
| Nyali High School       | 1995-2000            | Certificate             |
| Kigoma Secondary School | 2000-2002            | CSEE                    |

(b) Explain why physical formatting tags are better choices for getting the intended appearance than logical tags.

Physical formatting tags, such as `<b>` for bold and `<i>` for italics, directly specify how text should appear on the page, ensuring consistent visual output across browsers. Logical tags, like `<strong>` and `<em>`, rely on the browser's interpretation, which may vary, leading to inconsistent appearances.

8.

(a) Outline two internet uses that negatively affect our culture.

1. Access to inappropriate content: Promotes moral degradation and affects traditional values.
2. Online fraud and scams: Erodes trust and increases financial insecurity in communities.

(b) Explain how information and technology has contributed to environmental pollution.

1. Electronic waste: Discarded computers and gadgets release toxic substances into the environment.
2. Energy consumption: Large-scale IT infrastructures like data centers consume excessive energy, contributing to carbon emissions.
3. Paperless offices: While reducing paper usage, manufacturing digital devices has its own environmental impact.

9.

(a) Describe the terms below as used in word processing:

- (i) Line spacing: The vertical distance between lines of text in a document.
- (ii) Justification: Aligning text evenly along both the left and right margins.
- (iii) Formatting text: The process of changing the appearance of text, including font size, style, and color.

(b) Why almost all word processors have common features?

Most word processors share common features to maintain standardization, improve usability, and meet universal user requirements, such as editing, formatting, and saving documents.

(c) Differentiate a microcomputer from a supercomputer.

A microcomputer is a personal computer designed for individual use, suitable for general tasks like word processing and internet browsing. A supercomputer, on the other hand, is a highly advanced machine used for complex calculations and large-scale simulations, such as weather forecasting.

10. Describe how temperature, humidity, and dust can cause computer damage.

1. Temperature: Overheating can cause components to fail, such as the CPU and hard drive.
2. Humidity: Excessive moisture can lead to corrosion of electronic circuits.
3. Dust: Dust buildup can block air circulation and damage hardware by causing overheating or short circuits.

11. Trace the development of modern computers by elaborating the unique characteristics which were developed in each generation of computers.

1. First Generation (1940s-1950s): Vacuum tubes for circuitry, bulky and expensive.
2. Second Generation (1950s-1960s): Transistors replaced vacuum tubes, reducing size and power consumption.
3. Third Generation (1960s-1970s): Integrated Circuits improved speed and reliability.
4. Fourth Generation (1970s-present): Microprocessors enabled personal computers.
5. Fifth Generation (Present and beyond): Focus on AI and quantum computing.

12. Analyze the risks that a company faces by not creating backups for computerized information.

1. Data loss: Loss of critical information due to hardware failure or accidental deletion.
2. Security threats: Increased vulnerability to cyberattacks without recovery options.
3. Operational downtime: Inability to access essential data can halt business operations.
4. Reputational damage: Losing customer data can erode trust and harm the company's image.

**THE UNITED REPUBLIC OF TANZANIA**  
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**CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2011**

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

(i) In spreadsheets, a block which is selected ready for data entry is called:

- A. Active cell
- B. Inactive cell
- C. Red cell
- D. Formula bar
- E. Cell reference

Answer: A. Active cell

Reason: The active cell is the currently selected cell in a spreadsheet where data can be entered or edited.

(ii) Which tag is used to insert images into your webpage?

- A. Image
- B. Src
- C. Img
- D. File
- E. Jpg

Answer: C. Img

Reason: The `` tag is specifically designed to embed images in HTML documents, making it the correct choice.

(iii) The process of introducing a new system where the old and new systems operate side by side until the new system is established is called:

- A. Direct approach
- B. Phased approach
- C. Parallel approach
- D. Indirect approach
- E. Piloting approach

Answer: C. Parallel approach

Reason: The parallel approach ensures that both systems run simultaneously, minimizing risks during the transition phase.

(iv) In word processors, which document viewing option best presents how the document is organized?

- A. Normal View
- B. Web Layout View
- C. Outline View
- D. Reading Layout View
- E. Print Layout View

Answer: C. Outline View

Reason: Outline view provides a structured format of the document, showing headings and subheadings for better organization.

(v) A computer that holds databases and programs for many terminals is known as:

- A. Hub
- B. Client
- C. LAN
- D. Server
- E. Domain

Answer: D. Server

Reason: A server stores and manages resources, such as databases, to provide services to multiple client devices or terminals.

(vi) The term Netiquette as used by internet users refers to appropriate behavior while:

- A. Creating webpages
- B. Safeguarding computers
- C. Using a LAN
- D. Communicating online
- E. Searching

Answer: D. Communicating online

Reason: Netiquette refers to the code of conduct or proper behavior for interacting with others in online environments.

(vii) In word processors, aligning texts evenly between left and right margins is called:

- A. Editing
- B. Justification
- C. Centering
- D. Page setup
- E. Controlling

Answer: B. Justification

Reason: Justification ensures that text is evenly distributed between both margins, giving a clean and professional appearance.

(viii) Which software will be best suitable to create a customer inventory stock?

- A. Microsoft Access
- B. Microsoft Word
- C. Microsoft PowerPoint
- D. Microsoft FrontPage
- E. Microsoft Publisher

Answer: A. Microsoft Access

Reason: Microsoft Access is a database management system designed for organizing and managing inventory data efficiently.

(ix) A printer that prints by striking small pins to a ribbon representing the character is called:

- A. Dot-line
- B. Drum

- C. Desk jet
- D. Laser jet
- E. Dot-matrix

Answer: E. Dot-matrix

Reason: Dot-matrix printers use small pins to create characters on paper by striking an inked ribbon, making them suitable for certain applications.

---

2. Match the following uses of keyboard keys in List A to their corresponding key names in List B by writing the letter of the correct option beside the item number.

List A

- (i) When pressed together with Ctrl key sends the cursor to the bottom-most left corner of the screen.
- (ii) A key used when someone wishes to abandon the current task.
- (iii) Commonly used to accept data/commands which have just been typed on the screen.
- (iv) When pressed together with any letter while caps lock is on, a small letter is typed.
- (v) Allows the user to enter characters between already typed characters on a line of a monitor.
- (vi) Temporarily suspends a running program.
- (vii) Prints the content which appears on the monitor.
- (viii) Stops any texts from moving up or down the screen.
- (ix) Moves cursor to the next pre-set position that is, either forward or backward.
- (x) When pressed together with the control (Ctrl) key it sends the cursor to the top-most page in the same document.

List B

- A. ESC key
- B. Tab key
- C. Print screen
- D. Scroll lock
- E. Insert/Ins key
- F. Enter key
- G. Ctrl + End key
- H. Home key
- I. Right arrow
- J. Down arrow

Solution:

- (i) G
- (ii) A
- (iii) F
- (iv) E
- (v) E

- (vi) H
- (vii) C
- (viii) D
- (ix) B
- (x) J

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

- (i) The start and shortcut keys perform special functions in Windows operating system. T
- (ii) On a network, data is transmitted in small groups called packets. T
- (iii) Tags such as those indicating bold, strong, and emphasis are included in the category of basic formatting tags. T
- (iv) Word processing programs can only work with texts. F
- (v) Any type of information can be placed once the structure of a database is established. F
- (vi) Annotations are notes that accompany graphs in Excel. T
- (vii) The multimedia development process usually involves the efforts of a group of people. T
- (viii) Your e-mail address is completely private. F
- (ix) A scroll bar enables to view different parts of the file that does not fit in the window. T
- (x) A primary key is a foreign key field of one database table that also appears in another table in the same database. F

4.

(a) With examples, briefly describe each of the following as used in databases:

- (i) Field: A field is a single piece of data in a database table. For example, "Name" in a customer table.
- (ii) Record: A record is a collection of related fields representing one entity. For example, a row containing "John Doe, 30, Male" in a table.
- (iii) Relational database: A relational database organizes data into tables connected by relationships. For example, a student database linked with a course database.
- (iv) Key field: A key field uniquely identifies each record in a table. For example, "Student ID" in a student table.

(b) Restarting a computer which had already been switched on is called:  
Warm boot.

(c) Explain the features of a computer system abbreviated as WIMP.  
WIMP stands for Windows, Icons, Menus, and Pointers. These elements provide a graphical interface for users to interact with the operating system.

5.

(a) Explain briefly the meaning of "data processing."

Data processing refers to the collection, manipulation, and presentation of data to generate meaningful information.

(b) Briefly give four reasons to show the advantages of processing data electronically.

1. Speed: Data is processed faster compared to manual methods.
2. Accuracy: Minimizes errors through automated checks.
3. Efficiency: Handles large volumes of data with ease.
4. Storage: Allows compact storage and quick retrieval of information.

(c)

(i) Identify three tasks of the main memory of the computer.

1. Stores data temporarily for quick access.
2. Holds active applications and operating system processes.
3. Facilitates multitasking by managing memory allocation.

(ii) Why do computers require a storage device despite having the main memory?

Storage devices provide permanent data storage, unlike main memory, which is volatile and clears upon shutdown.

6.

(a) How does word processing differ from data processing?

Word processing focuses on creating and editing text documents, while data processing involves organizing and analyzing numerical or other types of data to produce meaningful results.

(b) Distinguish Desktop Publishing from Word Processing.

Desktop publishing is used for creating visually appealing layouts for print, such as flyers and brochures, while word processing is used for text-focused documents like letters and reports.

(c). (i) How does a spellchecker confirm the correct spelling of a word?

A spellchecker compares the typed word against its built-in dictionary to verify spelling.

(ii) Why would a spellchecker reject correctly spelt words?

It may reject words not included in its dictionary, such as names or technical terms.

(iii) How is a spellchecker made to accommodate new words?

New words can be added to the spellchecker's custom dictionary.

(d) Explain briefly each of the following in relation to document formatting:

(i) Margins: Margins define the space between the text and the edges of the page.

(ii) Orientation: Orientation determines whether the document is displayed in portrait or landscape layout.

- (iii) Page size: Page size specifies the dimensions of the document, such as A4 or letter size.
- (iv) Headers and Footers: Headers and footers are sections at the top and bottom of a document, respectively, used for repetitive information like page numbers.

#### 8. Differentiate Internet from URL.

- The Internet is a global network connecting millions of devices, enabling communication and data sharing.
- A URL (Uniform Resource Locator) is the specific address used to access a resource on the Internet.

(b).(i) What does the abbreviation URL stand for?

Uniform Resource Locator.

(ii) Describe the main parts of a URL.

1. Protocol (e.g., https://): Defines the communication rules.
2. Domain name (e.g., www.example.com): Specifies the resource's location.
3. Path (e.g., /folder/page.html): Points to the specific file or directory.

(iii) How does HTML differ from a URL?

HTML is the markup language used to create web pages, while a URL identifies the location of web pages on the Internet.

7.

(a) How does word processing differ from data processing?

Word processing is the use of software like Microsoft Word to create, edit, and format text documents. Data processing involves the manipulation of numerical or other types of data to generate information, often using spreadsheets or databases.

(b) Distinguish Desktop Publishing from Word Processing.

Desktop publishing involves creating documents with an emphasis on layout and design, such as brochures or newsletters, using software like Adobe InDesign. Word processing is focused on creating and editing textual documents with minimal formatting, like letters or reports.

(c)

(i) How does a spellchecker confirm the correct spelling of a word?

A spellchecker compares the entered word with its internal dictionary to check for a match.

(ii) Why would a spellchecker reject correctly spelled words?

The spellchecker may reject correctly spelled words if they are not included in its dictionary, such as names, technical terms, or acronyms.

(iii) How is a spellchecker made to accommodate new words?

Users can add new words to the spellchecker's custom dictionary to prevent future rejections.

(d) Explain briefly each of the following in relation to document formatting:

- (i) Margins: Margins define the blank space between the text and the edges of the page, providing a neat and readable layout.
- (ii) Orientation: Orientation refers to the direction in which a document is displayed or printed, either portrait or landscape.
- (iii) Page size: Page size determines the dimensions of the document, such as A4 or legal size.
- (iv) Headers and Footers: Headers and footers are sections at the top and bottom of a page, used for repetitive elements like page numbers, titles, or dates.

8.

(a) Differentiate Internet from URL.

The Internet is a global network of interconnected devices and servers used for communication and data sharing. A URL (Uniform Resource Locator) is the specific address used to access a particular resource or webpage on the Internet.

(b)

(i) What does the abbreviation URL stand for?

Uniform Resource Locator.

(ii) Describe the main parts of a URL.

- 1. Protocol: Specifies how data is transferred (e.g., http, https).
- 2. Domain name: Identifies the website (e.g., example.com).
- 3. Path: Points to a specific page or resource within the domain (e.g., /about).

(iii) How does HTML differ from a URL?

HTML (HyperText Markup Language) is used to create and structure web content, whereas a URL is used to locate that content on the Internet.

9. (a) Describe briefly the types of computers as classified according to size.

- 1. Microcomputers: Small, personal computers like desktops and laptops used for individual tasks.
- 2. Minicomputers: Medium-sized computers used by small businesses for shared tasks.
- 3. Mainframe computers: Large systems used by enterprises for processing vast amounts of data.
- 4. Supercomputers: Extremely powerful computers used for complex computations, such as weather modeling or scientific research.

10. (a) Explain the advantages of using computer networks.

- 1. Resource sharing: Enables devices like printers and storage to be shared among users.
- 2. Communication: Facilitates easy and instant communication through emails and messaging.
- 3. Centralized data management: Allows centralized access and management of information.

(b) Identify the major types of computer software and explain how they relate to the functioning of the computer system.

1. System software: Manages hardware and provides essential functions for running applications (e.g., operating systems).
2. Application software: Performs specific tasks for users, such as word processing or graphic design.
3. Utility software: Optimizes the performance of a computer, such as antivirus programs.

(c) Illustrate the relationship among the basic components of the computer system.

1. Input devices (e.g., keyboard, mouse): Capture data and send it to the computer for processing.
2. Central Processing Unit (CPU): Processes data and instructions.
3. Output devices (e.g., monitor, printer): Display or produce results from processed data.
4. Storage devices (e.g., hard drive): Store data permanently for future use.

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**036/1**

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2010**

**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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1. For each of the following items (i) - (x), choose the correct answer among the given alternatives and write its letter beside the item number.

(i) When one record in a database table can only be related to at least one record in another database table, the relationship is called:

- A. One-to-many relationship
- B. One-to-one relationship
- C. Many-to-one relationship
- D. Many-to-many relationship
- E. Compound relationship

Answer: A. One-to-many relationship

(ii) An inkjet printer:

- A. Can make multicolor output
- B. Is often used for photos
- C. Makes images by forcing ink droplets through nozzles
- D. Is relatively inexpensive compared to laser printers
- E. Is more delicate than laser printers

Answer: C. Makes images by forcing ink droplets through nozzles

(iii) All software are either:

- A. Application or utility software
- B. Application or system software
- C. System or utility software
- D. Anti-virus or system software
- E. Anti-virus or application software

Answer: B. Application or system software

(iv) \_\_\_\_\_ is a single program that provides the functionality of a word processor, spreadsheet, and database manager and more.

- A. General-purpose application
- B. Software suite
- C. Integrated package
- D. Program manager
- E. Operating system software

Answer: C. Integrated package

(v) The single biggest drawback to the use of e-cash is that:

- A. The consumer does not yet believe that e-cash is safe to use
- B. Anyone can become an e-bank
- C. E-cash is easy to lose
- D. E-cash is impossible to replace
- E. E-cash makes money laundering easy

Answer: A. The consumer does not yet believe that e-cash is safe to use

(vi) The ability to add visual or sound effects to any object in a presentation is referred to as:

- A. Transition
- B. Automation
- C. Animation
- D. Clip art
- E. Customize

Answer: C. Animation

(vii) Which of the following characteristics affects the brightness of images that appear on a computer screen?

- A. Colour screen
  - B. Dot pitch
  - C. Screen size
  - D. Type of printer
  - E. Refresh rate
- Answer: E. Refresh rate

(viii) \_\_\_\_\_ allows you to reorganize and add more effects to your digital video footage.

- A. Video editing software
- B. Audio editing software
- C. Paint program
- D. Browsers
- E. Animation

Answer: A. Video editing software

(ix) The school administration experiences irregular and frequent high power in their computer laboratory. What advice would you give them so that they can protect their computers?

- A. To install Voltage Regulator
- B. To install UPS
- C. To install firewall
- D. To install Surge Protector
- E. To have standby fire extinguisher

Answer: D. To install Surge Protector

(x) A device that connects computers into a network and segments it is called \_\_\_\_\_.

- A. A switch
- B. A home router
- C. A hub
- D. A GPS
- E. A modem

Answer: A. A switch

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) Topology
- (ii) Font
- (iii) Hyperlink
- (iv) Optical disk
- (v) Stylus
- (vi) User Interface
- (vii) Template
- (viii) Spooling
- (ix) Cache memory
- (x) FTP

List B

- A. Input device used instead of a mouse
- B. Temporary high-speed holding area between the memory and the CPU
- C. The process of queuing multiple print jobs
- D. Volatile storage that holds the program and data being processed by CPU
- E. Rules for exchanging data between computers
- F. An input device that resembles and works like a mouse
- G. Use laser technology and have great capacity of storage
- H. Set of characters in a particular type, style, and size
- I. Topographical order in the connection of computers
- J. A formatted document used to quickly create a standard document
- K. A part of a printer that deals with font of different colors
- L. Pen-like device with which the user of digitizing tablet sketches an image
- M. Rules of storing information that cannot be exchanged between computers
- N. Logical layout or shape of a local area network
- O. Unique name for an entire website
- P. Acts like a document that connects to other documents
- Q. Tells how to use a software program
- R. Link that is ready-made and cannot be altered by the user of a system in any way

Solution

- (i) Topology - N
- (ii) Font - H
- (iii) Hyperlink - P
- (iv) Optical disk - G
- (v) Stylus - F
- (vi) User Interface - Q

- (vii) Template - J
- (viii) Spooling - C
- (ix) Cache memory - B
- (x) FTP - E

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

- (a) Encrypted data is not directly usable. T
- (b) Magnetic tape can handle sequential data storage and retrieval only. T
- (c) You can access the World Wide Web using the multimedia authoring software. F
- (d) A key field is used to uniquely identify a field. F
- (e) Links on the web can be any amount of text but not be images. F
- (f) A complete computer system has two parts which are hardware and software. T
- (g) The delete key erases characters to the right of the cursor. T
- (h) All computer viruses are destructive. F
- (i) Bar code readers use laser beams to convert patterns of printed bars into codes that a computer can understand. T
- (j) Plug and play allow users to dispose off files and retrieve them later. F

4. (a) Compare and contrast the operation of the `<Shift + Delete>` and `<Backspace>` keys on a keyboard.

- `<Shift + Delete>` permanently deletes a selected item without sending it to the recycle bin.
- `<Backspace>` removes text or files by moving them to the recycle bin or deletes characters to the left of the cursor during typing.

(b) Differentiate the following:

(i) Double-click and drag

- Double-click. Quickly pressing the left mouse button twice to open a file or folder.
- Drag. Holding down the mouse button and moving an object or text to a new location.

(ii) Scrolling and Word wrap

- Scrolling: Moving up or down through content using a scroll bar or mouse wheel.
- Word wrap: Automatically moving text to the next line within margins when typing.

(iii) Icon and Dialog box

- Icon. A small graphical representation of an application or file.
- Dialog box: A window that prompts users to make a decision or enter additional information.

(iv) Hacker and Cracker

- Hacker. A person who gains unauthorized access to computer systems, often for testing security.
- Cracker: A malicious hacker who breaks into systems to cause harm or steal information.

(v) Webpage and Website

- Webpage. A single document on the internet (e.g., an article).
- Website. A collection of interconnected webpages under a single domain (e.g., www.example.com).

5. (a) Explain what is meant by the term "electronic office."

An electronic office refers to a workplace equipped with digital tools and systems such as computers, internet access, and software to enhance productivity, communication, and record management.

(b) Describe any three principal features of an electronic mail system within an organization.

1. Messaging. Allows employees to send and receive emails instantly.
2. Attachments: Enables sharing of documents, images, and files with messages.
3. Group communication. Facilitates mass communication by sending a single email to multiple recipients.

(c) Explain what is meant by EFT.

Electronic Funds Transfer (EFT) is the digital transfer of money from one bank account to another through an electronic system, eliminating the need for physical transactions.

(d) Explain what a local area network is and give any two advantages obtained from its use.

A Local Area Network (LAN) is a network that connects computers within a small geographical area, such as an office or school.

Advantages:

1. Facilitates easy sharing of resources like printers and files.
2. Enhances communication and collaboration within the organization.

(e) With the aid of diagrams, describe briefly each of the following:

(i) A Bus network

A Bus network connects all devices to a central cable (the "bus"), and data travels in both directions along the cable.

(ii) A Ring network

A Ring network connects devices in a circular structure where data travels in one direction to prevent collisions.

(iii) A Star network

A Star network connects all devices to a central hub or switch, with communication passing through the hub.

6. (a) Explain the main difference between the use of magnetic tape and magnetic disk in data storage.

Magnetic tape is used for sequential data access, meaning data is read or written in a specific order. Magnetic disk allows random data access, meaning data can be retrieved directly from any location on the disk.

(b) Give two advantages of optical disks compared to magnetic disks.

1. Durability: Optical disks are less prone to physical damage than magnetic disks.
2. Portability: Optical disks are lightweight and easy to transport.

(c) Briefly describe the following:

(i) Data compression

Data compression reduces the size of files to save storage space or speed up transmission.

(ii) Data encryption

Data encryption converts data into a secure format to prevent unauthorized access.

(iii) Data integrity

Data integrity ensures that data is accurate, consistent, and unaltered during storage or transmission.

7. Describe the characteristics and purposes of the following:

(a) A Pointer

The pointer is a symbol, usually an arrow, displayed on the screen that is controlled by a pointing device such as a mouse. It allows the user to interact with graphical elements like menus, icons, and text.

(b) A Graphics Display

A graphics display presents visual information such as text, images, and videos on the screen. It is used in applications like gaming, video editing, and graphic design for better visual clarity.

(c) A Mouse

The mouse is an input device that allows users to interact with the computer by moving the pointer, clicking, and selecting objects on the screen. It typically includes buttons and sometimes a scroll wheel.

(d) A Pull-down Menu

A pull-down menu is a list of options that appears when a user clicks on a menu title in a graphical interface. It helps in organizing commands or actions under specific categories.

8. (a) Explain what is meant by the term database.

A database is an organized collection of data stored electronically to allow easy access, management, and retrieval of information.

(b) Mention any three characteristics that must be met in order to have an efficient database.

1. Data consistency to ensure accuracy.
2. Data integrity to maintain correctness.
3. Fast and reliable access to stored information.

(c) Give two reasons why a database might be preferred to data files.

1. Databases allow multi-user access simultaneously, whereas data files are often limited to single-user access.
2. Databases provide better security and backup options than data files.

(d) A Database Management System (DBMS) is a program that provides an interface between the operating system and the user and simplifies access to the data. Give two other functions provided by the DBMS.

1. Data backup and recovery.
2. Managing relationships between multiple data tables.

9. Explain how the following operations can be done on a computer with a keyboard but without a mouse:

(a) Copying a document

Use `Ctrl + C` to copy selected text or items.

(b) Paste the copied document

Use `Ctrl + V` to paste the copied content.

(c) Navigate through the document

Use arrow keys, `Page Up`, `Page Down`, `Home`, and `End` keys.

(d) Save a created document

Use `Ctrl + S` to save the document.

(e) Print a document

Use `Ctrl + P` to open the print dialog and confirm printing with `Enter`.

(f) Open the saved document

Use `Ctrl + O` to browse and open a saved document.

(g) Open a new document

Use `Ctrl + N` to create a new document.

(h) Close the opened document

Use `Ctrl + W` or `Alt + F4` to close the document.

10. (a) Describe the process involved in mail merging.

Mail merging involves creating a template document and linking it with a data source (e.g., Excel or Access) to generate personalized documents such as letters for multiple recipients.

(b) Describe the process of sending and receiving electronic mail.

To send an email: Compose a message, attach files if needed, enter the recipient's email address, and click Send. To receive: Log into your email account, and messages appear in the inbox.

11. (a) Give six examples of jobs that have been created by the introduction of IT.

1. Software developers.
2. Network administrators.
3. Data analysts.
4. Cybersecurity specialists.
5. Social media managers.
6. IT support technicians.

(b) Describe three other possible benefits of this increased use of IT.

1. Enhanced productivity through automation.
2. Improved global communication via emails and video calls.
3. Access to vast educational and professional resources online.

(c) Personal information stored electronically is potentially easier to misuse than kept in paper files. Give two reasons.

1. Electronic information is vulnerable to hacking and data breaches.
2. Digital data can be copied and distributed easily without detection.

12. (a) What is DTP?

Desktop Publishing (DTP) is the process of creating professional-quality printed materials such as flyers, brochures, and newsletters using specialized software.

(b) Explain, in simple terms, what the above sentence means.

DTP allows users to design and arrange text and graphics to create visually appealing documents for printing.

(c) Students in your school are going to produce a school newsletter which will be produced using DTP.

(i) Give three items of hardware they might use apart from the computer (e.g., CPU, Keyboard, VDU, and mouse).

1. Printer.
2. Scanner.
3. Digital camera.

(ii) Give reasons for your choice of three items in (c)(i) above.

1. Printer: To produce physical copies of the newsletter.
2. Scanner: To digitize images or documents for inclusion in the newsletter.
3. Digital camera: To capture high-quality images for use in the newsletter.

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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) Cost of food for 1 meal  $\times$  Number of meals per week  $\times$  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.

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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.

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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.

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036/1

**INFORMATION AND COMPUTER STUDIES 1**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2007**

**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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1. For each of the items (i)–(vi), choose the correct answer from among the given alternatives and write its letter beside the item number.

(i) The device that can eliminate the manual step of keying in the data is called a

- A. key-to-disk machine
- B. optical scanner
- C. keypunch machine
- D. electronic register
- E. mouse

Answer: B. optical scanner

Reason: An optical scanner is used to automatically convert printed or written text into digital data, eliminating manual data entry.

(ii) An impact printer gets its name by

- A. having the same print quality as an electric typewriter
- B. transferring a pattern of dots on paper
- C. transferring a whole or partial character by striking the ribbon
- D. using heat to transfer an image onto the paper
- E. creating continuous character images using light

Answer: C. transferring a whole or partial character by striking the ribbon

Reason: Impact printers create characters by physically striking the ribbon against the paper.

(iii) The following is not the function of the control unit:

- A. To coordinate transfer of data to and from primary storage
- B. To change the sequence in which instructions are executed when directed to do so
- C. To recognize data and to execute instructions
- D. To perform arithmetic operations
- E. To direct and to control input and output devices

Answer: D. To perform arithmetic operations

Reason: Arithmetic operations are performed by the Arithmetic Logic Unit (ALU), not the control unit.

(iv) An optical recognizer can read

- A. magnetically encoded numbers
- B. any combination of numbers and letters
- C. bar codes in supermarkets
- D. electronically encoded patterns
- E. specially coded characters or patterns

Answer: C. bar codes in supermarkets

Reason: Optical recognizers, such as barcode scanners, are designed to read bar codes.

(v) The following is a direct access storage device:

- A. A tape
- B. A card
- C. A disk
- D. A printer
- E. A joystick

Answer: C. A disk

Reason: Disks, such as hard disks and SSDs, allow direct access to data, unlike tapes which use sequential access.

(vi) A programming language that uses normal sentences in English is called a

- A. machine language
- B. first generation language
- C. procedure-oriented language
- D. natural language
- E. high level language

Answer: E. high level language

Reason: High-level languages are designed to be human-readable, often resembling normal English sentences.

(vii) Fundamental steps in developing computer programs and application software include all of the following except:

- A. Maintenance
- B. Language selection
- C. Analysis and design
- D. Supervisor approval
- E. Implementation

Answer: D. Supervisor approval

Reason: Supervisor approval is not typically a fundamental step in the software development lifecycle.

(viii) The REM statement is used to:

- A. Document a program
- B. Reserve room in the computer's memory for subscripted variables
- C. Remember values that are assigned to LET statements
- D. Permit the use of matrix operations
- E. Skip one line before executing the next command

Answer: A. Document a program

Reason: The REM (remark) statement in BASIC is used to add comments or documentation to the code, which are ignored during execution.

(ix) When used in a PRINT statement, the colon (:) will:

- A. Cause an error message
- B. Result in printing expressions, numbers, and messages closer together
- C. Result in printing expressions, numbers, characters, and messages in the next field
- D. Cause the computer to skip one line before printing
- E. Result in printing null characters on the screen

Answer: B. Result in printing expressions, numbers, and messages closer together

Reason: In BASIC, a colon (:) separates multiple PRINT statements, allowing the output to appear closer together.

(x) Data can be entered directly into the computer system from a terminal when using the:

- A. TERM statement
- B. ENTER statement
- C. READ statement
- D. LET statement
- E. INPUT statement

Answer: E. INPUT statement

Reason: The INPUT statement allows a user to enter data directly into the program during execution.

2. Match the items in List A with the responses in List B by writing the letter of the corresponding response beside the item number.

List A

- (i) TAB
- (ii) LET
- (iii) Scripted variables
- (iv) Modem
- (v) Logical
- (vi) Structured design
- (vii) Problem definition
- (viii) Coding
- (ix) Coder
- (x) Technical design

List B

- A. Allows companies to electronically, store, rearrange and print key paragraphs
- B. Example of first-generation computer
- C. Possible carrier with computer manufacturer

- D. The use of a device to encode a transform data into digital codes
- E. Used in BASIC program to represent lists or table numbers
- F. Another name for a computer programmer
- G. An error that will not result in an error message
- H. A type of number that is only evenly divisible by itself
- I. A hardware device that is used in data communication
- J. A file organization method that involves storing logical records in a given sequence, usually based on key control field in the record
- K. Will cause the values of the variable to be stored in computer memory
- L. The activity of producing software in a formal project environment
- M. Used to produce attractive output in a computer program
- N. A program that combines separate modules into one executable program
- O. The overall purpose is to find the best possible way to develop software
- P. Procedures and rules used to develop data communication software
- Q. The step of application development where input requirements are determined
- R. Rules that are used with a particular programming language
- S. The process of writing the necessary instructions in a computer programming language
- T. A type of implementation procedure

#### Solutions

- (i) TAB - E
- (ii) LET - K
- (iii) Scripted variables - R
- (iv) Modem - I
- (v) Logical - G
- (vi) Structured design - N
- (vii) Problem definition - Q
- (viii) Coding - S
- (ix) Coder - F
- (x) Technical design - O

3. (a) What does each of the following flowchart symbols represent?

- (i) Oval (a): Represents the start or end of a process.
- (ii) Parallelogram (b): Represents input or output operations.
- (iii) Rectangle (c): Represents a process or operation to be performed.
- (iv) Diamond (d): Represents a decision point in the flowchart.

4. (a) What is the difference between an algorithm and a pseudocode?

An algorithm is a formal, step-by-step procedure to solve a problem, typically written in a structured format. Pseudocode, on the other hand, is an informal and human-readable representation of an algorithm, using simple language and programming constructs to describe its logic.

(b) When numbers are used in a BASIC program, commas should not be included (e.g., 1000 should not be written as 1,000). Why?

In BASIC programming, commas are used as delimiters to separate values or variables. Including commas in numbers would cause syntax errors as the program would treat them as separate entities.

5. (a) Distinguish between an assembler and an interpreter as used in programming languages.

An assembler converts assembly language code into machine code, which the computer can directly execute. An interpreter translates high-level programming language code into machine code line by line during runtime, allowing immediate execution.

(b) Explain two circumstances under which you would format a floppy diskette.

- To prepare the disk for use by creating a new file system.
- To erase all existing data on the disk and remove potential corrupt files or viruses.

6. (a) What is a Binary Coded Decimal (BCD)?

Binary Coded Decimal (BCD) is a method of representing decimal numbers in which each digit of the number is represented by its binary equivalent.

(b) Represent the decimal number 2003 as a BCD code.

Decimal: 2003

BCD: 0010 0000 0000 0011

(c) What is a hexadecimal number system?

The hexadecimal number system is a base-16 numbering system that uses digits 0-9 and letters A-F to represent values.

(d) Convert the hexadecimal number EC to a decimal (base 10) number.

Hexadecimal: EC

Decimal:  $(E \times 16^1) + (C \times 16^0) = (14 \times 16) + (12 \times 1) = 224 + 12 = 236$

7. (a) Why can't we use zero (0) as a step value in the FOR and NEXT loops?

Zero cannot be used as a step value because it would create an infinite loop. The step value determines how much the loop variable changes with each iteration, and a step of zero means no change, preventing the loop from ending.

(b) Correct errors in the following nested FOR/NEXT loop:

```
FOR I = 1 TO 5
  FOR J = Q TO R

  NEXT I
```

NEXT J

Corrected Version:

```
FOR I = 1 TO 5
  FOR J = Q TO R
  ...
  NEXT J
NEXT I
```

Reason: The `NEXT` statements were incorrectly placed. The inner loop (`FOR J`) must have its corresponding `NEXT J` before the outer loop (`FOR I`) ends.

(c) What rules should be remembered when using nested FOR/NEXT loops?

1. Each `FOR` statement must have a corresponding `NEXT` statement.
2. The innermost loop must complete before the outer loops continue.
3. Loop variables must not interfere with each other.

8. What are the qualities of a good algorithm?

- Clarity: The steps should be simple and easy to understand.
- Efficiency: The algorithm should use the least amount of time and resources possible.
- Finiteness: The algorithm must always terminate after a finite number of steps.
- Correctness: The algorithm must produce the expected output for all valid inputs.

9. (a) Write a BASIC statement that will join A\$ and B\$ and produce C\$. If A\$ = "JOSEPH" and B\$ = "MILENZO", what will C\$ be equal to after this statement is executed?

`C\$ = A\$ + B\$`

Result: `C\$ = "JOSEPHMILENZO"``

(b) What is the general format of the LET statement? Give one example.

The general format is: `LET variable = expression`.

Example: `LET X = A + B`.

10. (a) List down three program structures.

- Sequential structure
- Selection structure
- Iteration structure

(b) What is data?

Data refers to raw facts or figures that can be processed by a computer to produce meaningful information.

11. Write down the output of the following program:

```
COUNT = 0
LIMIT = 3
ANAMES = "ABDALLAH HAMIS"
DO UNTIL COUNT = LIMIT
    COUNT = COUNT + 1
    PRINT ANAMES
    PRINT COUNT
LOOP
PRINT "THE END"
END
```

Step-by-step Execution:

1. Initial values: COUNT = 0, LIMIT = 3.
2. First iteration:  
COUNT = 1, PRINT "ABDALLAH HAMIS", PRINT 1.
3. Second iteration:  
COUNT = 2, PRINT "ABDALLAH HAMIS", PRINT 2.
4. Third iteration:  
COUNT = 3, PRINT "ABDALLAH HAMIS", PRINT 3.

After the loop ends, PRINT "THE END".

Output:

```
ABDALLAH HAMIS
1
ABDALLAH HAMIS
2
ABDALLAH HAMIS
3
THE END
```

12.

(a) What are the functions of the main memory?

- Stores data and instructions that the CPU processes.
- Holds intermediate results during program execution.
- Retains data temporarily while waiting to be processed or transferred.

(b) Line numbers in a BASIC program serve two purposes. What are they?

- They specify the sequence in which statements are executed.
- They help in debugging by allowing specific lines to be identified and edited.

13. (a) Write down the order in which arithmetic operators are evaluated. How are the operators at the same level operated?

The order is:

- Parentheses
- Exponents
- Multiplication and Division (left to right)
- Addition and Subtraction (left to right)

At the same level, operators are evaluated from left to right.

(b) Evaluate the expression  $(4 + A \left( \sqrt{25/4} \right)^3)$  where  $A = 154$ .

Step-by-step calculation:

- $(\sqrt{25/4} = 5/2 = 2.5)$
- $((2.5)^3 = 15.625)$
- $(154 \times 15.625 = 2406.25)$
- $(4 + 2406.25 = 2410.25)$

Final result: 2410.25

(c) List down the three types of information processing systems.

1. Batch processing system
2. Real-time processing system
3. Online processing system

14.

(a) Dry run the following nested FOR/NEXT loop and write down the output:

```
10 FOR i = 1 TO (3 * 4) STEP -4
20  FOR j = 1 TO 2 STEP -1
30   PRINT i, j
40  NEXT j
50 NEXT i
```

The loop contains an error because the step values are negative, but the range does not allow the loop to execute.

Corrected Output: None (loop does not execute).

(b) What is a variable?

A variable is a named storage location in memory that can hold data values, which can change during program execution.

(c) Differentiate a numeric variable from a string variable.

A numeric variable holds numeric values (e.g., integers or decimals), while a string variable holds sequences of characters or text.

15. (a) What steps are followed in setting up a counter for loop control?

- Initialize the counter variable.
- Define the start and end values of the counter.
- Specify the increment or decrement step.

(b) What input statements are available in BASIC? Explain the use of each statement.

- INPUT: Allows the user to input data during program execution.
- READ: Retrieves data from a DATA statement.

(c) What is the need of using RESTORE statements?

The RESTORE statement resets the pointer of a DATA statement, allowing the program to read data from the beginning again.

16. (a) What is the advantage of using arrays?

- Arrays store multiple values of the same type under one variable name, improving code organization.
- They allow easy access to values using indices.

(b) Write a BASIC program that prints the largest number in an array of 10 numbers.

```
DIM NUM(10)
FOR i = 1 TO 10
  READ NUM(i)
NEXT i
LET MAX = NUM(1)
FOR i = 2 TO 10
  IF NUM(i) > MAX THEN LET MAX = NUM(i)
NEXT i
PRINT "The largest number is"; MAX
DATA 12, 34, 56, 78, 90, 23, 45, 67, 89, 11
END
```

Output: The largest number is 90

17. (a) Development of a program can be broken down into six phases. State them.

- Problem definition
- Feasibility study
- System design
- Coding
- Testing
- Implementation and maintenance

(b) Differentiate library functions from user-defined functions.

Library functions are pre-written and provided by the programming environment, while user-defined functions are created by the programmer for specific tasks.

18. (a) Explain three types of errors which a programmer may encounter when preparing a BASIC program.

- Syntax errors: Occur when code violates the rules of the programming language.
- Logical errors: Occur when the program runs but produces incorrect results due to flaws in logic.
- Runtime errors: Occur during program execution, often due to invalid input or memory issues.

(b)

(i) What is an email?

Email is an electronic method of exchanging messages and files over the internet.

(ii) List two advantages and two disadvantages of email.

Advantages:

- Fast communication.
- Cost-effective.

Disadvantages:

- Requires internet access.
- Risk of spam or phishing attacks.