COMPUTER SET SOLUTIONS

Prepared by:
SEBS Students Club

Prepared for:
Class VIII

2025

SET SOLUTION

ABOUT THE AUTHOR

The SEBS Students Club is a vibrant community of Sagarmatha English Boarding School-SEBS students, supported by SEBS. Our mission is to promote student involvement in education, endorsing participation in various activities, events, and programs. Through collaboration and engagement, we create a space where students can thrive academically and socially. 🌟📚

SET SOLUTION

by

SEBS STUDENTS CLUB

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SET
1

Attempt all the questions

GROUP A

Very short answer questions

1. **What is a computer?**
   - A computer is a programmable electronic machine that accept data, process it and produce information.
2. **What is a search engine?**
   - A search engine is a website which search information on web with the help of keywords.
3. **Give any one examples of social network.**
   - Facebook is an example of a social network.
4. **How many bits are there in a byte?**
   - 8 bits are there in a byte.
5. **What is the extension of an HTML file?**
   - The extension of HTML file is ".html".
6. **What is the function of "Save as" in word processing package?**
   - It allows you to save the current document as a new file, preserving the original document in its previous state.
7. **Are computer virus and human virus being the same?**
   - No, computer viruses and human viruses are not the same.
8. **Write the full forms of the following.**

   i. Windows XP - Windows Experience ii. BIOS - Basic Input/Output System

   iii. MODEM – Modulator and Demodulator iv. CPU – Central Processing Unit

1. **What is a computer?**
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GROUP B

Short answer questions

1. Explain the characteristics of computer.

- Characteristics of computer are:

i. Speed
ii. Accuracy

i. Speed

- Computers can process data and perform tasks at incredibly high speeds. Operations that would take humans hours or days can be completed by a computer in seconds or milliseconds. Speed is measured in terms of ***hertz (Hz),*** *such as* ***gigahertz (GHz),*** *which indicates the number of operations a computer can perform per second.*

ii. Accuracy

- Computers perform tasks with a high degree of accuracy. They follow instructions precisely and produce consistent results, provided the input data and programming are correct. Errors in computer output are usually due to human mistakes in programming or data entry.

2. How does system software differ from application software? Explain.

- **1. Definition**

System Software:

- System software is a type of software designed to manage and control the hardware and provide a platform for running application software.
- It acts as an intermediary between the hardware and the user or application software.

Application Software:

- Application software is designed to perform specific tasks or provide functionality for the user.
- It is built to help users accomplish particular goals, such as creating documents, browsing the internet, or editing photos.

2. Purpose

System Software:

- Manages hardware resources (e.g., CPU, memory, storage).
- Provides a stable environment for application software to run.
- Handles system operations like booting, security, and file management.

Application Software:

- Performs user-oriented tasks.
- Helps users solve problems or complete specific activities.
- Examples include word processors, web browsers, and games.

3. Define the term multimedia. Explain the importance of multimedia in education.

- Multimedia refers to the combination of different forms of media, such as text, images, audio, video, animations, and interactive elements, to convey information effectively.

Importance of Multimedia in Education

Multimedia plays a crucial role in modern education by making learning more engaging, interactive, and effective. Here are some key benefits:

i. **Enhances Learning Experience** – Multimedia makes lessons more engaging through visuals, animations, and audio explanations, helping students understand complex concepts easily.

ii. Improves Retention and Recall – Studies show that combining visual and auditory elements improves memory retention, making learning more effective.

4. **How can a Nepalese students get the information about educations from US based collage?**

- A Nepalese student can access U.S. college education information through official websites, and direct communication with universities with the help of internet.

5. **Explain the importance of computer graphics.**

- **Computer Graphics in Entertainment**

Computer graphics are widely used in movies, video games, and animation. Special effects in films make imaginary scenes look real, like superheroes flying or dinosaurs walking. In video games, graphics create realistic characters, landscapes, and animations, making the gaming experience more exciting and fun.

- **Computer Graphics in Education**

In schools and online learning, computer graphics help students understand difficult topics through pictures, animations, and videos. For example, in science, students can watch animations of how the human heart beats or how planets move in space.

6. **Write the short notes on:**

i. My computer ii. Primary Key

i. My Computer

- “My Computer" is a feature in older versions of the Windows operating system that provides users with easy access to their files, folders, and storage devices. It allows users to view and manage their computer’s hard drive, USB drives, CD/DVD drives, and network locations. In newer versions of Windows, "My Computer" has been replaced by "This PC," but it still serves the same purpose of organizing and accessing files efficiently.

ii. Primary Key

- A **Primary Key** is a unique identifier for a record in a database table. It ensures that no two rows in the table have the same value for the primary key field, helping maintain data integrity. A primary key cannot have duplicate or NULL values. For example, in a student database, the "Student ID" can be used as a primary key because each student has a unique ID.

7. **Convert decimal number into binary numbers.**

i. 101_2 ii. 55_{10}

8. **Add the binary numbers.**

i. $1001 + 1001_2$ ii. $1101 + 1101_2$

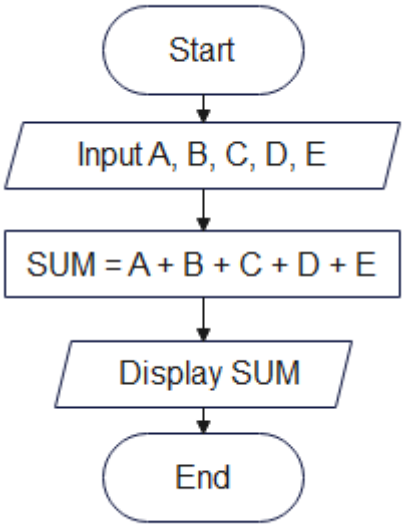
GROUP C

Long answer questions

1. a. Write an HTML code to give your personal information.

```
<html>
<head>
   <title>My Personal Information</title>
</head>
<body>
      <h2>My Information</h2>
      <p><strong>Name:</strong> Vikram Adhikari</p>
      <p><strong>Age:</strong> 31 </p>
      <p><strong>Email:</strong> email@example.com</p>
      <p><strong>Phone:</strong> +977-9815634682</p>
      <p><strong>Address:</strong> Shivasatakshi - 6, Nepal</p>
</body>
</html>
```

b. Draw a flowchart to find the sum of any five positive numbers.



2. Classify the computer on the basis of size. Explain each in brief.

- Computers can be classified based on their size into the following categories:

i. Microcomputers:

These are the most common and affordable computers used by individuals. They are typically desktop computers or laptops. They are used for tasks like word processing, internet browsing, gaming, etc.

Examples: Personal computers, laptops, tablets.

ii. Minicomputers:

Smaller than mainframes but more powerful than microcomputers. Minicomputers are used by medium-sized businesses and for specific tasks in research and industry. They are Used in industrial and scientific applications, controlling machinery, or processing data for multiple users.

Examples: PDP-11, Digital Equipment Corporation (DEC) systems.

iii. Mainframe Computers:

Large, powerful machines capable of handling very large volumes of data. Mainframes support multiple users and are used for critical applications in large organizations. They are used by banks, large corporations, government agencies, and other large enterprises for processing large amounts of data and running mission-critical applications.

Examples: IBM Z-series, Unisys ClearPath.

iv. Supercomputers:

The fastest and most powerful computers, capable of executing trillions of calculations per second. They are designed for highly complex tasks that require immense computational power. They are used in weather forecasting, scientific simulations, nuclear research, and complex problem-solving in physics, chemistry, and engineering.

Examples: Cray supercomputers, Fugaku.

SET
2

Attempt all the questions

GROUP A

Very short answer questions

1. **Who is known as father of computer?**
   - Charles Babbage is the father of Computer.
2. **Which computer's accuracy is higher (i.e. analog or digital)**
   - **Digital computers** have higher accuracy compared to **analog computers**.
3. **What is the alternate name of home page?**
   - The alternate name for the **home page** is the **landing page**.
4. **Who develops the punch cards?**
   - **Punch cards** were primarily developed by **Herman Hollerith**, an American inventor and statistician, in the late 19th century.
5. **How many bytes a character "Y' stored?**
   - A character like **"Y"** is typically stored using **1 byte.**
6. **How many types of tags are in HTML?**
   - There mainly **two** types of tags in HTML, **single** and **double** tags.
7. **How many components are there in computer system?**
   - A **computer system** consists of **four major components**.
8. **What does antivirus software do in our computer?**
   - Antivirus software protect computer from harmful software, or malware, by detecting, preventing, and removing malicious programs.
9. **Write the full forms of the following.**

   i. DOS - Disk Operating System
   ii. IRC – Internet Relay Chat
   iii. HTML – Hypertext Markup Language
   iv. LAN – Local Area Network

GROUP B

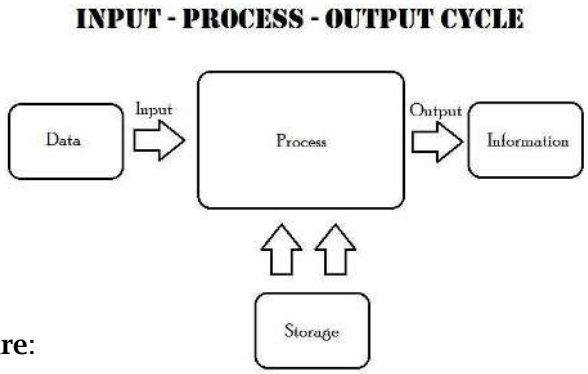
Short answer questions

1. **What is an I.P.O cycle? Describe with figure.**
   - An **I.P.O. cycle** (Input-Process-Output cycle) is a fundamental concept in computer science and describes how data flows through a system. It represents the steps a computer or any information system takes to handle data, from receiving input to producing output.

   Here's a simplified **diagram** to represent the I.P.O. cycle:

   In this cycle:

- Data is input into the system.
- The system processes the data according to specific rules or instructions.
- The processed data is output as the result.
- This cycle repeats continuously as new input is received.



2. Write down the features of spreadsheet software.

- Here are two key features of **spreadsheet software**:

i. Data Organization (Cells, Rows, and Columns):

Spreadsheet software organizes data into a grid of cells, arranged in rows and columns. Each cell can hold data such as text, numbers, or formulas. This structure allows users to easily input, organize, and manipulate data in a clear and systematic way.

ii. Formulas and Functions:

Spreadsheet software supports various built-in functions and formulas that allow users to perform calculations, analysis, and automate tasks. These can range from simple arithmetic operations (addition, subtraction) to more complex statistical or financial calculations.

3. What is super computer? Mention its features.

- A supercomputer is a high-performance computing machine designed to perform extremely complex calculations at incredibly high speeds.

- **Features of Supercomputers:**

i. High Processing Speed.

ii. Massive Parallel Processing.

4. Define the term communication. Mention the importance of social network.

- Communication refers to the process of exchanging information, ideas, thoughts, or feelings between individuals or groups.

- **Importance of Social Networks:**

i. Facilitating Connectivity.

ii. Information Sharing.

iii. Networking and Professional Growth.

iv. Marketing and Brand Building.

5. What is computer graphics? Explain the features of page layout software.

- Computer graphics refers to the creation, manipulation, and representation of visual images using computers.

- **Features of Page Layout Software**

i. Text and Typography Management

ii. Image and Graphic Insertion

iii. Templates and Layouts

iv. Grid Systems and Guides

6. Write short notes on:

i. LAN ii. MS-Excel

- **i. LAN (Local Area Network):**

A **Local Area Network (LAN)** is a network of computers and devices connected within a limited geographical area, such as a home, office, or campus. LANs allow the sharing of resources like

files, printers, and internet connections among connected devices. They typically operate using wired connections (Ethernet cables) or wireless technologies (Wi-Fi).

- **ii. MS-Excel:**

Microsoft Excel is a powerful spreadsheet software used for data analysis, calculation, and visualization. It is part of the Microsoft Office suite and is widely used for tasks such as budgeting, financial analysis, project management, and data modeling.

7. Convert the decimal numbers into binary numbers.

i. 111 ii. 107

Add the binary numbers

i. $1111_2 + 101_2$ ii. $101_2 + 100_2$

GROUP C

Long answer questions

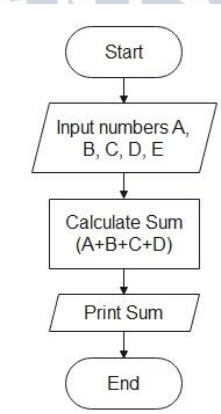
1. a. Draw a flowchart to find the sum of any five positive numbers.

b. Write a QBASIC program to read the value of base and height of a triangle and find its area.

```
CLS
LET base = 10
LET height = 10
LET area = lase * height
PRINT "Area of a triangle is = "; area
END
```

2. Distinguish between word processing package, spreadsheet package and presentation with any two examples of each.

1. **a. Draw a flowchart to find the sum of any five positive numbers.**



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2. Distinguish between word processing package, spreadsheet package and presentation with any two examples of each.

Feature	Word Processing	Spreadsheet	Presentation
Primary Use	Creating and editing text documents	Organizing, analyzing, and visualizing data	Creating visual slideshows and presentations
Main Components	Text, images, tables, and documents	Cells, rows, columns, and formulas	Slides, text, images, animations
Examples	Microsoft Word, Google Docs	Microsoft Excel, Google Sheets	Microsoft PowerPoint, Google Slides
Functions	Text formatting, spell-check, document editing	Data entry, calculation, charting	Slide creation, animations, multimedia

SET
3

Attempt all the questions

GROUP A

Very short answer questions

1. **What is CPU?**
   - The **CPU (Central Processing Unit)** is the **brain** of a computer that performs all the instructions and calculations necessary for running programs.
2. **What is the name of the first electro-mechanical computer?**
   - The name of the **first electro-mechanical computer** is **Harvard Mark I**.
3. **Which computer was firstly used for commercial purpose?**
   - The first computer used for commercial purposes was **UNIVAC I (Universal Automatic Computer I)**.
4. **Which computer is used for petrol refining?**
   - The computer used for petroleum refining is typically a **Supercomputer** or **Process Control Computer**.
5. **In which generation microprocessor was developed?**
   - The microprocessor was developed in the **fourth generation** of computers.
6. How many types of application software are there?
   - There are **two** types of application software.
7. **Are "save" and "save as" same in MS-Word?**
   - No, **"Save"** and **"Save As"** are **not the same** in MS Word. They serve different purposes.
8. **How many types of system software are there?**
   - There are mainly **four** types of system software.

Operating	System
Utility	Software
Device	Drivers
Firmware	

9. **Write the full form of the following.**

   i. WWW – World Wide Web
   ii. CD – Compact Disk
   iii. MAN – Metropolitan Area Network
   iv. CUI – Character User Interface

GROUP B

Short answer questions

1. **What is OS? Write down the advantages of window-based OS over DOS based OS.**

- An **Operating System (OS)** is **system software** that manages computer hardware, software, and resources, providing a user-friendly interface for interaction. It controls processes, memory, storage, and input/output devices.

- **Advantages of Windows-Based OS Over DOS-Based OS [Any Two]**

i. Graphical User Interface (GUI) – Easy to use with icons, menus, and a mouse, unlike DOS, which requires command-line inputs.

ii. Multitasking Support – Allows running multiple programs simultaneously, whereas DOS can run only one program at a time.

iii. User-Friendly – No need to remember complex commands like in DOS; simple navigation using windows and menus.

iv. Better Software Support – Compatible with modern applications, games, and professional software, unlike DOS, which has limited software options.

2. **Explain the advantage of computer network?**

- **Advantages of a Computer Network**

i. **Resource Sharing**

Users can share printers, scanners, and other devices, reducing the need for multiple devices. Files and databases can be easily shared across computers in the network, improving collaboration.

ii. **Cost Efficiency**

Sharing resources such as printers and hard drives reduces the need to purchase multiple devices for each user. Network-based communication (e.g., email, VoIP) is often cheaper than traditional communication methods like phone calls.

3. **What is super computer? How it is differed from micro-computer? Explain.**

- A **supercomputer** is an extremely powerful computer designed to perform complex calculations at incredibly high speeds.

- **Differences Between Supercomputers and Microcomputers**

A supercomputer is designed to handle highly complex and resource-intensive tasks. It has enormous processing power, capable of performing trillions of calculations per second. This allows supercomputers to be used for specialized purposes like scientific simulations, weather forecasting, and advanced research.

On the other hand, a **microcomputer** is designed for **general-purpose use** and is much more affordable and compact. It is used for daily activities such as word processing, web browsing, and entertainment. Microcomputers have significantly lower **processing power** than supercomputers and typically run at speeds in the gigahertz range.

4. **Write short notes on:**

i. Computer Network ii. HTML

- **i. Computer Network**

A **computer network** is a system of interconnected computers that are able to communicate with each other and share resources, such as data, applications, and hardware. Networks can be categorized based on their size, like **LAN (Local Area Network)**, **WAN (Wide Area Network)**, and **MAN (Metropolitan Area Network)**. The main components of a computer network include

servers, **clients**, **network devices** (such as routers, switches), and **communication mediums** (such as cables or wireless signals). A computer network enhances resource sharing, communication, and data security, making it essential for businesses and organizations. It allows multiple users to access shared resources, collaborate on projects, and access data remotely.

ii. HTML (HyperText Markup Language)

HTML (HyperText Markup Language) is the standard language used to create and design web pages and applications. HTML structures the content of a webpage by using various **tags** to define elements such as headings, paragraphs, links, images, lists, and forms. Each HTML document is composed of elements marked by opening and closing tags (e.g., <h1> for headings, <p> for paragraphs). HTML forms the backbone of web content and is often used alongside **CSS (Cascading Style Sheets)** for styling and **JavaScript** for interactivity. HTML is essential for building websites and is the foundation of web development.

5. **What are the components of multimedia?**

- The components of multimedia are:
  i. Text
  ii. Images
  iii. Audio
  iv. Video
  v. Animation
  vi. Interactivity

6. **Define the term HTML. Explain the importance of HTML in web page design.**

- **HTML (HyperText Markup Language)** is the standard markup language used to create and structure content on the web.
- **HTML (HyperText Markup Language)** is the fundamental language used to structure content on the web. It uses tags to define elements like headings, paragraphs, images, and links, providing the framework for web pages. HTML is essential in web design because it organizes content in a way that makes it accessible and understandable by both browsers and search engines. It enables the integration of multimedia elements, supports hyperlinks for navigation, and works with **CSS** and **JavaScript** to enhance the design and interactivity of websites. In short, HTML is the backbone of web page creation, ensuring structure, functionality, and accessibility.

7. **Solve the following.**

i. $(111111)_2 - (10011)_2$ ii. $(11001000)_2 - (1111111)_2$

GROUP C

Long answer questions

1. **a. Write a program to convert Fahrenheit temperature into Celsius.**

```
CLS
INPUT "Enter temperature in Fahrenheit"; F
C = (F - 32) * (5/9)
PRINT "Temperature in Celcius = "; C
END
```

b. Explain the function of following statements.

PRINT LET INPUT

PRINT Statement

- Used to display text, numbers, or variables on the screen.

LET Statement

- Used to assign a value to a variable.

INPUT Statement

- Used to take input from the user and store it in a variable.

2. **Define hybrid computer. How do you differentiate analog and digital computer? Explain.**

- A hybrid computer is a type of computer that combines the features of both analog and digital computers. It is designed to process both continuous (analog) and discrete (digital) data. Hybrid computers are often used in specialized applications such as medical diagnostics, industrial control systems, and scientific simulations.

- Differences between analog and digital computers:

Feature	Analog Computer	Digital Computer
Definition	Processes continuous data (real-world signals like temperature, sound, pressure).	Processes discrete (binary) data (0s and 1s).
Data Type	Works with physical quantities.	Works with numbers and symbols.
Speed	Faster in real-time computations.	Relatively slower but more precise.
Accuracy	Less accurate due to external factors like noise.	Highly accurate as it processes discrete values.
Examples	Thermometer, Speedometer, Analog Watch.	Laptop, Smartphone, Digital Calculator.

SET
4

Attempt all the questions

GROUP A

Very Short answer questions

1. **What is a webpage?**
   - A webpage is a digital document on the internet, displayed in a web browser, containing text, images, and multimedia elements.
2. **What is a browser?**
   - A browser is a software application used to access and display webpages on the internet (e.g., Google Chrome, Mozilla Firefox).
3. **Name the component used in the first-generation computer.**
   - Vacuum tubes.
4. **For what purpose can an algorithm be used?**
   - An algorithm is used to solve problems step by step in a logical manner, especially in programming and data processing.
5. **How many types of computer generations are there?**
   - There are **five** generations of computers.
6. **What is a cell in spreadsheet software?**
   - A cell is the intersection of a row and a column in a spreadsheet where data is entered.
7. **Which software is known as a presentation software?**
   - Microsoft PowerPoint.
8. **Who destroys all the programs, data, files, etc., of a computer?**
   - A **computer virus** or **malware** can destroy all programs, data, and files.
9. **Write the full form of the following:**
   Windows XP – Windows Experience
   EDSAC – Electronic Delay Storage Automatic Calculator
   CD-ROM – Compact Disc Read-Only Memory
   NAV – Norton AntiVirus

GROUP B

Short answer questions

1. **Explain the functions of a computer briefly.**
   - A computer performs four main functions: **input, processing, storage, and output**. The input function allows users to enter data using devices like a keyboard, mouse, or scanner. The processing function is carried out by the **CPU (Central Processing Unit)**, which interprets and executes instructions. The storage function enables the computer to save data temporarily in **RAM (Random Access Memory)** and permanently in storage devices like **HDD (Hard Disk Drive)**

or SSD (Solid State Drive). The output function presents the processed information through output devices like a monitor, printer, or speakers. These functions work together to enable smooth computer operations.

2. **What are the precautions for computer viruses?**

   - To prevent computer viruses and malware attacks, the following precautions should be taken:
     - Install and regularly update **antivirus software** to detect and remove threats.
     - Avoid **downloading files** from untrusted websites and refrain from opening suspicious email attachments.
     - Enable **firewalls** to block unauthorized access and protect data.
     - Regularly update the **operating system and installed applications** to fix security vulnerabilities.
     - Use **strong and unique passwords** to prevent unauthorized access.
     - Avoid using **pirated software**, as it may contain harmful malware.

3. **Explain the use of multimedia in business and fine arts.**

   - Multimedia is widely used in both **business and fine arts** for communication, promotion, and creativity. In business, multimedia plays a significant role in **advertising, training, presentations, and video conferencing**. Companies use digital marketing strategies that involve **animated advertisements, infographics, and product demonstration videos** to attract customers. In fine arts, multimedia allows artists to explore **digital painting, animation, photography, music production, and video editing**. Advanced software like **Adobe Photoshop and Illustrator** helps artists create digital illustrations, while audio and video editing tools enable the production of high-quality content.

4. **Mention any five points of computer ethics.**

   - **Do not use computers to harm others**, such as hacking, cyberbullying, or data theft.
   - **Respect privacy and confidentiality** by not accessing or sharing someone else's personal data without permission.
   - **Do not spread viruses or malicious software**, as they can damage systems and data.
   - **Give credit to content creators** by respecting copyrights and avoiding plagiarism.
   - **Use computers responsibly** and ensure ethical use of resources like the internet, software, and databases.

5. **Define operating system. Explain the types of operating systems on the basis of use.**

   - An **operating system (OS)** is system software that manages hardware and software resources, allowing users to interact with the computer. It controls file management, task execution, and hardware coordination. Based on usage, operating systems are classified as:
     - **Single-user OS**: Designed for one user at a time, commonly found in **Windows, macOS, and Android**.
     - **Multi-user OS**: Supports multiple users simultaneously, typically used in **Linux, UNIX, and Windows Server**.

6. **Write short notes on:**

   i. Adobe InDesign

   - Adobe InDesign is a **desktop publishing software** used for designing professional layouts for books, magazines, brochures, and posters. It offers advanced tools for **typography, page**

formatting, and interactive document creation. It is widely used by graphic designers and publishers for both print and digital media.

ii. Adobe Photoshop

- Adobe Photoshop is a **powerful image editing and graphic design software** used for **photo retouching, digital painting, and web design**. It provides tools for **layer editing, color correction, special effects, and AI-powered enhancements**. It is widely used by photographers, artists, and designers for professional-quality image manipulation.

7. **Compute and convert the following numerals to decimal:**

i. $(101001 \div 1101)_2$

ii. **$(1011101)_2 \div (110)_2$**

GROUP C

Long answer questions

1. **Explain the importance of algorithm and flowchart in program design with any one example of each.**

- Algorithm and flowchart are essential tools in **program design** as they help in planning and structuring a program before actual coding.

- **Importance of Algorithm:**

- **Defining a clear logic** for solving a problem.
- **Reducing errors** by planning the steps before coding.
- **Making debugging easier**, as well-structured logic minimizes mistakes.
- **Optimizing performance** by using efficient steps in a structured manner.
- **Enhancing code reusability**, as algorithms can be applied to similar problems.

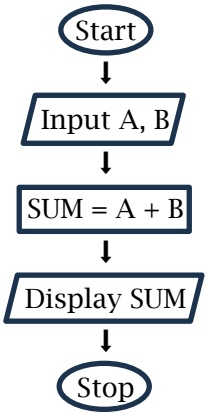
Example of an Algorithm (Finding the Sum of Two Numbers):

Step 1: Start
Step 2: Input two numbers (A and B)
Step 3: Add the numbers → SUM = A + B
Step 4: Display SUM
Step 5: Stop

- **Importance of Flowchart:**

- **Visually represents the program flow**, making it easy to understand.
- **Identifies logical errors** before writing actual code.
- **Enhances communication** among developers by providing a structured design.
- **Simplifies complex problems** by breaking them into smaller steps.

Example of a Flowchart (Finding the Sum of Two Numbers):



2. **What is an operating system? Write the advantages of Windows OS over DOS.**

   - An **operating system (OS)** is system software that manages **hardware and software resources** in a computer. It acts as an interface between the user and the hardware, enabling users to execute programs, manage files, and perform various tasks. Examples of operating systems include **Windows, macOS, Linux, and Android**.

   Advantages of Windows OS over DOS:

   - **Graphical User Interface (GUI):** Windows provides an easy-to-use GUI with icons, menus, and windows, whereas DOS is a command-line interface (CLI), requiring users to type commands manually.
   - **Multitasking:** Windows allows multiple programs to run simultaneously, whereas DOS supports only one task at a time.
   - **Plug and Play Support:** Windows automatically detects and installs hardware drivers, whereas DOS requires manual driver installation.
   - **Software Compatibility:** Windows supports modern applications, multimedia, and internet browsing, while DOS is limited to text-based applications.
   - **User-Friendly Features:** Windows provides advanced features like file explorer, task manager, and search functionality, making it easier for users to manage files and settings.

SET
5

Attempt all the questions

GROUP A

Very short answer questions

1. **What is a website?**
   - A website is a **collection of web pages** that are hosted on a server and accessed via the internet using a web browser.
2. **How many steps are required in DPS?**
   - Three steps are required in Data Processing System (DPS): Input, Processing, and Output.
3. **Name the types of OS on the basis of user.**
   - Single-user OS and Multi-user OS.
4. **Name the types of number system.**
   - Binary (Base-2), Octal (Base-8), Decimal (Base-10), Hexadecimal (Base-16).
5. **In which generation does our digital computer lie?**
   - **Fifth generation** (Current generation of computers using AI and advanced processors).
6. **Write any two names of graphics package software.**
   - **Adobe Photoshop** and **CorelDRAW**.
7. **Name the extension of MS Word.**
   - **.docx** (For Word 2007 and later) and **.doc** (For older versions).
8. **List any two names of multimedia software.**
   - **Adobe Premiere Pro** and **Windows Media Player**.
9. **What are the functions of the following shortcut keys?**
   Ctrl + S → Saves the current document or file.
   Ctrl + C → Copies the selected text or item.
   Ctrl + B → Makes the selected text **bold**.
   Ctrl + P → Opens the **Print** dialog box.

GROUP B

Short answer questions

1. **What is meant by header and footer? How do you insert a header and footer in your document?**
   - A **header** is the section at the **top** of a document page, while a **footer** is at the **bottom**. They are used to display repetitive information such as **page numbers, document titles, dates, or author names**.
   - To insert a header and footer in MS Word:
   - Go to the **Insert** tab.
   - Click on **Header** or **Footer**.
   - Select a pre-designed layout or create a custom one.
   - Enter the required text or elements.
   - Click **Close Header and Footer** to finish.
2. **What is a spreadsheet package? Mention any two features of it. Also, define a chart in a spreadsheet package.**
   - A **spreadsheet package** is application software used for **storing, organizing, and analyzing data** in a tabular format using rows and columns. Examples include **MS Excel, Google Sheets, and LibreOffice Calc**.
   - Two features of a spreadsheet package:
   - **Formula & Functions:** It allows performing calculations automatically using formulas (e.g., SUM, AVERAGE).
   - **Data Sorting & Filtering:** Users can arrange and filter data based on specific criteria.
   Chart in Spreadsheet Package:
   - A **chart** is a graphical representation of numerical data in a spreadsheet. It helps in visualizing trends, comparisons, and patterns. Examples include **bar charts, pie charts, and line graphs**.
3. **What are the reasons for making computer viruses?**
   - To **steal sensitive data** like passwords and financial information.
   - To **disrupt or damage systems** for personal or political motives.
   - To **gain unauthorized access** to networks or computers.
   - To **spread advertisements and generate profit** through malicious software.
   - To **test security vulnerabilities** and exploit weaknesses in software.
4. **What do you know about software piracy and digital signature?**
   - **Software Piracy:** The unauthorized copying, distribution, or use of copyrighted software without a valid license. It leads to **legal issues, financial losses for developers, and security risks**.
   - **Digital Signature:** A cryptographic technique used to **verify the authenticity and integrity** of digital documents. It ensures that the document is **not altered** and is sent by a verified source.
5. **Define MS Excel. Explain any three features of a spreadsheet package.**
   MS Excel is a popular **spreadsheet software** developed by Microsoft, used for **data management, calculations, and analysis**. It provides various tools for financial modeling, statistical analysis, and automation.

Three features of a spreadsheet package:

- **Cell Referencing:** Allows linking values between different cells for calculations.
- **Conditional Formatting:** Highlights specific data based on predefined conditions.
- **Pivot Tables:** Helps summarize and analyze large datasets efficiently.

6. Write short notes on:

i. Microcomputer:

- A **microcomputer** is a small, personal computer designed for individual use. It uses a **microprocessor as its CPU** and includes components like **RAM, storage, and input/output devices**. Examples: **Desktops, Laptops, Tablets**.

ii. **Presentation Package:**

- A **presentation package** is software used to create and display digital presentations. It includes tools for **text, images, animations, and multimedia integration**. Examples: **Microsoft PowerPoint, Google Slides, Prezi**.

7. Conversions & Binary Addition:

a. Convert decimal numbers into binary:

i. $(55)_{10} \rightarrow (110111)_2$

ii. $(90)_{10} \rightarrow (1011010)_2$

b. Add the binary numbers:

i. $(1111)_2 + (1011)_2 = (11010)_2$

ii. $(11011)_2 + (10001)_2 = (101100)_2$

GROUP C

Long answer questions

1. What is a function? Write the functions supported by MS-Excel. How do you merge two cells in MS-Excel?

- A **function** is a predefined formula used in a program to perform a specific task. In MS Excel, functions help in performing calculations, data analysis, and logical operations efficiently.

Functions Supported by MS-Excel:

- **Mathematical Functions:** Used for numerical calculations.
- **Statistical Functions:** Used for data analysis and statistics.
- **Logical Functions:** Used for decision-making operations.
- **Text Functions:** Used for text manipulation.
- **Date & Time Functions:** Used to manipulate date and time values.
- **Lookup & Reference Functions:** Used to find and retrieve data from a table.

- How to Merge Two Cells in MS-Excel?

- Select the two or more cells you want to merge.
- Go to the **Home** tab.
- Click on **Merge & Center** from the alignment section.
- The selected cells will be merged into a single cell.
- If you want to merge without centering, click the drop-down next to **Merge & Center** and choose **Merge Cells**.

2. **Explain the evolution of computers and describe the technologies used in different generations of computers.**

- The **evolution of computers** refers to the technological advancements in computing systems from early mechanical devices to modern high-speed processors. This evolution is divided into **five generations**, each defined by the key technology used.

First Generation (1940–1956): Vacuum Tube Technology

- Used **vacuum tubes** for processing and memory.
- Computers were **large, expensive, and consumed a lot of power**.
- Programming was done using **machine language (binary code)**.
- Example: **ENIAC, UNIVAC-I, EDSAC**.

Second Generation (1956–1963): Transistor Technology

- Used **transistors** instead of vacuum tubes, making computers smaller, faster, and more reliable.
- Introduced **assembly language**, making programming easier.
- Computers were used in **scientific research and business applications**.
- Example: **IBM 1401, IBM 7090, UNIVAC 1108**.

Third Generation (1964–1971): Integrated Circuit (IC) Technology

- Used **integrated circuits (ICs)**, which increased processing speed and reduced size.
- Introduced **high-level programming languages** like FORTRAN, COBOL, and BASIC.
- Computers became **affordable and more accessible to businesses**.
- Example: **IBM 360, PDP-8, Honeywell 6000**.

Fourth Generation (1971–Present): Microprocessor Technology

- Used **microprocessors**, which combined multiple ICs into a single chip.
- Introduced **graphical user interfaces (GUI)**, making computers user-friendly.
- Development of **networking and the internet** revolutionized computing.
- Computers became **portable (laptops, personal computers, smartphones)**.
- Example: **Intel 4004 (first microprocessor), IBM PC, Apple Macintosh**.

Fifth Generation (Present & Beyond): Artificial Intelligence (AI) and Quantum Computing

- Uses **artificial intelligence (AI), neural networks, and quantum computing** for advanced processing.
- Computers can perform **speech recognition, natural language processing, and deep learning**.
- Quantum computers are being developed for **high-speed and complex problem-solving**.
- Example: **IBM Watson, Google Quantum Computer, AI-powered systems**.

SET
6

Attempt all the questions

GROUP A

Very short answer questions

1. **What are the demerits of a computer?**
   - Cyber Threats (Hacking, viruses, data breaches)
   - Job Displacement (Automation reduces manual jobs)
2. **How many ways can a computer be classified on the basis of operation?**
   - Three ways: Analog computers, Digital computers, and Hybrid computers.
3. **What is hardware?**
   - Hardware refers to the **physical components** of a computer system, such as the **CPU, monitor, keyboard, and motherboard**.
4. **Which device is known as the first electronic device?**
   - Vacuum Tube (Used in first-generation computers like ENIAC).
5. **Which markup language is used for creating webpages?**
   - HTML (HyperText Markup Language).
6. **How many digits are used in the decimal number system?**
   - 10 digits (0 to 9).
7. **For what purpose is InDesign software used?**
   - Adobe InDesign is used for **desktop publishing, designing magazines, newspapers, brochures, and eBooks**.
8. **List any two names of multimedia software.**
   i. Adobe Premiere Pro
   ii. Windows Media Player
9. **Write the full form of the following:**
   i. LED → Light Emitting Diode
   ii. MODEM → Modulator-Demodulator
   iii. COBOL → Common Business Oriented Language
   iv. CAD → Computer-Aided Design

GROUP B

Short answer questions

1. **What do you know about editing and formatting text in a word processing package? Explain.**

   - In a **word processing package** like MS Word, editing and formatting are essential functions for creating well-structured documents.

   Editing: Refers to making changes to the text, such as **adding, deleting, copying, cutting, pasting, and replacing words or sentences**. Editing tools include **Find & Replace, Undo & Redo, and Spell Check**.

   Formatting: Involves changing the **appearance** of the text, such as **font style, size, color, alignment, line spacing, bullets, and numbering**. It enhances the readability and presentation of the document.

2. **List any four safety measures to protect a computer.**
   - **Install antivirus software** to prevent malware and viruses.
   - **Use strong passwords** to protect user accounts and data.
   - **Keep the operating system and software updated** to fix security vulnerabilities.
   - **Avoid suspicious emails and websites** to prevent phishing attacks.
3. **What are the symptoms of a computer virus?**
   - Slow system performance and frequent crashes.
   - Unexpected pop-ups and error messages.
   - Files getting deleted or corrupted automatically.
   - Unusual hard drive activity or excessive internet usage.
4. **What can an operating system do in a computer system? Explain.**

   - An **operating system (OS)** is system software that manages computer hardware and software resources and provides a user interface.

   Functions of an Operating System:
   - **Process Management:** Controls running applications and multitasking.
   - **Memory Management:** Allocates and deallocates memory for processes.
   - **File System Management:** Organizes files and folders for easy access.
   - **Device Management:** Communicates with hardware components like printers and keyboards.
   - **Security & Access Control:** Provides user authentication and protection against unauthorized access.
5. **Define MS-Word. Explain any three features of a word processing package.**

   - **MS Word** is a popular **word processing software** developed by Microsoft, used for creating, editing, and formatting documents such as letters, reports, and books.

   Three Features of a Word Processing Package:
   - **AutoCorrect & Spell Check:** Automatically corrects spelling and grammatical errors.
   - **Tables & Charts:** Allows users to create structured data presentations.
   - **Mail Merge:** Automates the process of sending bulk letters/emails using a single template.
6. **Write short notes on:**

   i. **Page Layout in Graphics:**

- Page layout refers to the **arrangement of text, images, and other elements** on a document or design project. In **graphic design software** like Adobe InDesign or CorelDRAW, page layout tools help in setting **margins, columns, spacing, and alignment** for professional-looking designs.

ii. MS Excel:

- MS Excel is a **spreadsheet application** used for **data analysis, financial calculations, and visualization**. It provides functions like **formulas, pivot tables, charts, and conditional formatting** to manage large amounts of data efficiently.

7. Convert decimal numbers into binary numbers:

i. $(125)_{10} \rightarrow (1111101)_2$

ii. $(990)_{10} \rightarrow (1111101110)_2$

GROUP C

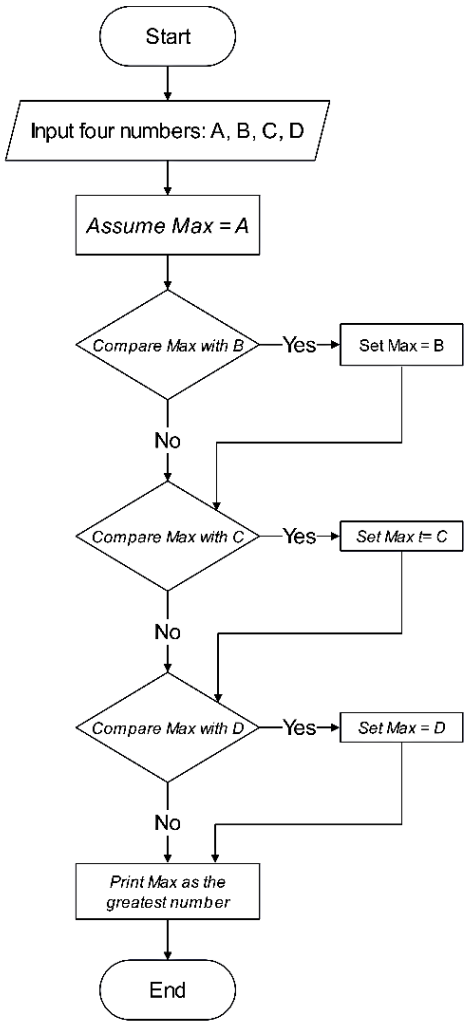
Long answer questions

1. Write an algorithm and draw a flowchart to find the greatest number among any four different numbers.

Algorithm:

1. **Start**
2. Input four numbers: **A, B, C, D**
3. Assume **Max = A**
4. Compare **Max** with **B**, if **B > Max**, then set **Max = B**
5. Compare **Max** with **C**, if **C > Max**, then set **Max = C**
6. Compare **Max** with **D**, if **D > Max**, then set **Max = D**
7. Print **Max** as the greatest number
8. **End**

Flowchart



2. Explain all the mechanical computers in chronological order.

- Mechanical computers were early computing devices that used gears, levers, and mechanical components to perform calculations. Below is a chronological explanation of important mechanical computers:

1. Abacus (3000 BCE - Ancient Times)

The **Abacus** is one of the earliest known calculating tools. It consists of beads on rods and was used for basic arithmetic operations like addition and subtraction.

2. Pascaline (1642)

Blaise Pascal invented the **Pascaline**, an early mechanical calculator that could add and subtract numbers using a system of gears and dials. It was one of the first devices to perform direct numerical calculations.

3. Leibniz Calculator (1673)

Gottfried Wilhelm Leibniz improved on Pascal's design by creating the **Stepped Reckoner**, which could perform multiplication and division in addition to basic arithmetic. It used a stepped drum mechanism.

4. Jacquard Loom (1801)

Joseph-Marie Jacquard developed the **Jacquard Loom**, a mechanical weaving device that used punched cards to control patterns. Although it was not a computer, it inspired later computing concepts.

5. Difference Engine (1822)

Charles Babbage designed the **Difference Engine**, a mechanical calculator designed to compute polynomial functions and print mathematical tables automatically. However, it was never fully built during his lifetime.

6. Analytical Engine (1837)

Charles Babbage also designed the **Analytical Engine**, which was the first conceptual design for a programmable computer. It included features like an arithmetic logic unit (ALU), memory, and punched-card input, making it a precursor to modern computers.

7. Tabulating Machine (1890)

Herman Hollerith invented the **Tabulating Machine**, which used punched cards to process large amounts of data, such as the US Census. This machine laid the foundation for modern data processing.

8. Differential Analyzer (1930s)

Vannevar Bush developed the **Differential Analyzer**, an analog mechanical computer used for solving complex mathematical equations, particularly in physics and engineering.

SET
7

Attempt all the questions

GROUP A

Very short answer questions

1. **Which digits are used in the binary number system?**
   - The binary number system uses two digits: 0 and 1.
2. **Give any two examples of single-purpose computers.**
   - ATM (Automated Teller Machine)
   - Digital watches
3. **Why can't a computer run without an OS?**
   - An operating system (OS) acts as an interface between the hardware and the user. It manages system resources, runs applications, and enables communication between software and hardware. Without an OS, a computer cannot function properly.
4. **How many types of electro-mechanical computers are there?**
   - There are two types: Analog electro-mechanical computers and Digital electro-mechanical computers.
5. **Give any two examples of multi-user operating systems.**
   i. UNIX
   ii. Linux
6. **What is a database?**
   - A database is an organized collection of data that allows users to store, retrieve, manage, and update information efficiently.
7. **What is an antivirus program?**
   - An antivirus program is software designed to detect, prevent, and remove malicious programs (viruses, malware, spyware) from a computer system.
8. **What is one difference between an input device and an output device?**
   - Input devices allow users to enter data into the computer (e.g., keyboard, mouse), while output devices display or produce results from the computer (e.g., monitor, printer).
9. **Write the full form of the following:**
   i. IBM → International Business Machines
   ii. CRT → Cathode Ray Tube
   iii. NIC → Network Interface Card
   iv. GUI → Graphical User Interface

GROUP B

Short answer questions

1. **List out any four services provided by the Internet.**

   i. Email: Allows users to send and receive messages globally.

   ii. Web Browsing: Provides access to information, websites, and online content.

   iii. Online Banking: Enables financial transactions and account management over the Internet.

   iv. Social Media: Facilitates communication and content sharing through platforms like Facebook and Instagram.

2. **What do you mean by video conferencing and virtual reality?**

   - Video Conferencing: It is a communication method where multiple users can have a live audio-visual meeting over the internet, using software like Zoom, Microsoft Teams, or Google Meet.

   - Virtual Reality (VR): It is a technology that creates a **simulated, immersive experience** using VR headsets, allowing users to interact with a 3D environment as if they were physically present.

3. **How does a virus transfer from one computer to another? Explain.**

   - A computer virus spreads through various means, such as:

   Infected Email Attachments: Opening malicious attachments can install viruses.

   Removable Media (USB, CDs, External Drives): Plugging in an infected device can transfer the virus.

   Internet Downloads: Downloading files or software from untrusted websites may introduce viruses.

   Network Sharing: Viruses can spread through shared files in a local network.

   Malicious Websites & Pop-ups: Visiting unsafe websites can automatically download malware onto a system.

4. **What do you mean by a computer system? Draw a neat diagram of it.**

   - A **computer system** is a combination of **hardware, software, and users** that work together to process and store information. It consists of **input devices, processing units, output devices, and storage** to perform computing tasks.

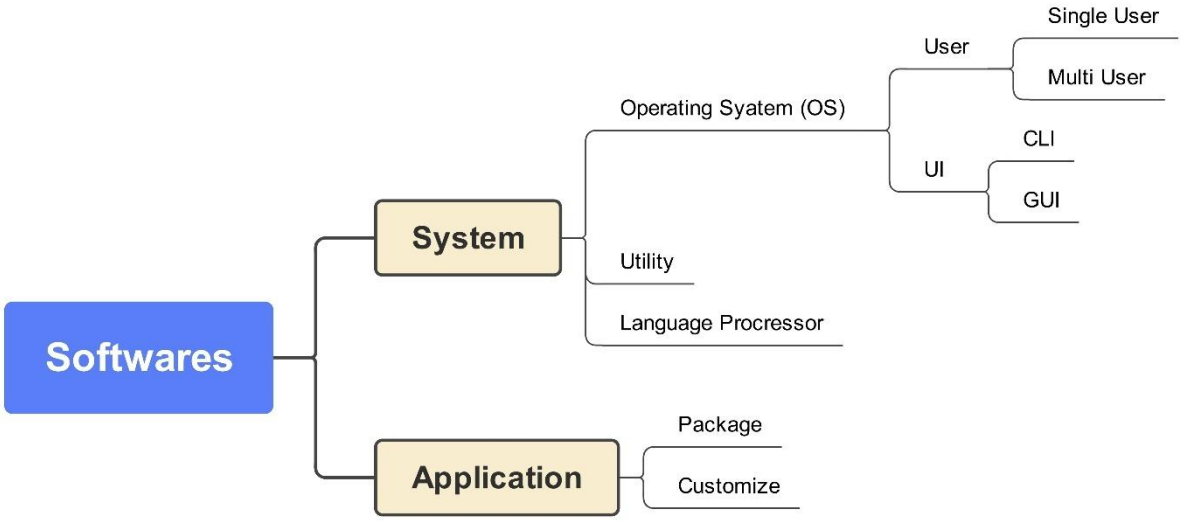
   Diagram

5. **Define software with any four examples. List the types of software in a tree structure.**

   - Software is a set of **instructions, programs, and data** that allow a computer to perform specific tasks. It acts as an interface between hardware and users.

   Examples: Microsoft Word, Adobe Photoshop, Google Chrome, Windows 10

Types of Software (Tree Structure):



6. **Write short notes on:**

i. Web Page and Website:

- A **web page** is a single document that is part of a website and is accessed through a web browser. Example: Home page of Facebook.

A **website** is a collection of related web pages stored under a common domain, such as www.google.com.

ii. Search Engine:

- A **search engine** is an online tool that helps users find information on the internet by indexing websites and displaying relevant results.

Examples: **Google, Bing, Yahoo**

7. **Convert binary numbers into decimal numbers:**

i. $(1111000)_2$ → Decimal

$(1111000)_2 = (1\times2^6) + (1\times2^5) + (1\times2^4) + (1\times2^3) + (0\times2^2) + (0\times2^1) + (0\times2^0)$

$= 64 + 32 + 16 + 8 + 0 + 0 + 0 = 120$

$(1111000)_2 = (120)_{10}$

ii. $(10101010)_2$ → Decimal

$(10101010)_2 = (1\times2^7) + (0\times2^6) + (1\times2^5) + (0\times2^4) + (1\times2^3) + (0\times2^2) + (1\times2^1) + (0\times2^0)$

$= 128 + 0 + 32 + 0 + 8 + 0 + 2 + 0 = 170$

$(10101010)_2 = (170)_{10}$

GROUP C

Long answer questions

1. **What is an algorithm? How does it differ from a flowchart? Explain.**

- An **algorithm** is a step-by-step, systematic procedure used to solve a problem or perform a task. It is a sequence of well-defined instructions that lead to a solution. Algorithms are typically written in a human-readable language (such as pseudocode or natural language) and can be

executed by a machine (in programming languages). They are essential in computer science for solving computational problems efficiently.

- A **flowchart** is a graphical representation of an algorithm, where the steps of the algorithm are depicted using different symbols such as rectangles (for processes), diamonds (for decision points), and arrows (for flow direction). Flowcharts provide a visual way of mapping out the logic and sequence of operations, making it easier to understand the steps and their relationships.

Key Differences:

- **Representation**: Algorithms are expressed in textual or symbolic form, whereas flowcharts are visual diagrams.
- **Detail**: An algorithm specifies the logic of the problem-solving process, while a flowchart provides a high-level view of how the algorithm works.
- **Usage**: Algorithms are more suitable for precise computational tasks, while flowcharts are used for illustration and to simplify complex processes.

2. What is an operating system? Explain different types of operating system as you know.

- An **operating system (OS)** is system software that manages computer hardware and software resources and provides services for computer programs. It acts as an intermediary between the hardware and the user, facilitating the execution of programs and ensuring proper communication between various components.

Different types of operating systems include:

1. **Batch Operating System**: This OS does not interact with the user directly. Instead, jobs are collected, processed in batches, and then executed. It is suitable for large tasks with little to no user interaction (e.g., mainframe computers).
2. **Time-Sharing Operating System (Multitasking)**: A time-sharing OS allows multiple users to interact with the system simultaneously by allocating time slots for each task. It enables multitasking, where the CPU switches between tasks quickly, giving the impression of simultaneous execution.
3. **Distributed Operating System**: This type of OS manages a group of independent computers that appear as a single system to users. It helps in sharing resources across multiple machines, providing enhanced performance, fault tolerance, and scalability.
4. **Network Operating System (NOS)**: A network OS manages network resources and allows computers to communicate and share data over a network. It supports file sharing, printer access, and other network services (e.g., Windows Server, Linux).
5. **Real-Time Operating System (RTOS)**: An RTOS is designed to process data in real-time with precise timing constraints. It is used in systems where delays cannot be tolerated, such as embedded systems, robotics, and aviation control systems.
6. **Mobile Operating System**: These are OSes specifically designed for mobile devices, such as smartphones and tablets (e.g., Android, iOS). They provide optimized performance for touchscreens, battery management, and mobile-specific apps.
7. **Embedded Operating System**: This OS is used in embedded systems like washing machines, smart TVs, or IoT devices. It is lightweight, task-specific, and optimized for minimal resource consumption.

SET
8

Attempt all the questions

GROUP A

Very short answer questions

1. **What is HTML?**
   - HTML (HyperText Markup Language) is the standard language used for creating and designing webpages. It structures content on the web using tags.
2. **What is abacus?**
   - An abacus is a traditional counting tool used for arithmetic calculations, consisting of a series of rods or wires with beads that represent numbers.
3. **What is internet?**
   - The internet is a global network that connects millions of computers and devices, allowing them to share information and communicate through various protocols.
4. **Give an example of a multi-user operating system.**
   - An example of a multi-user operating system is UNIX, which allows multiple users to access and use the system resources simultaneously.
5. **Define computer.**
   - A computer is an electronic device that processes data and performs tasks based on instructions. It can store, retrieve, and manipulate data.
6. **What is memory unit?**
   - The memory unit is a component of a computer that stores data and instructions for quick access by the CPU. It includes both primary (RAM) and secondary (hard drive, SSD) memory.
7. **Are the functions of 'close' and 'exit' the same in MS-Word?**
   - No, the function of 'close' in MS-Word closes the current document, while 'exit' closes the entire application, ending the session.
8. **When was cyber law introduced in Nepal?**
   - Cyber law was introduced in Nepal in 2004 with the enactment of the "Electronic Transaction Act."
9. **Write the full forms of the following:**
   i. **HTTP** - HyperText Transfer Protocol
   ii. **IE** - Internet Explorer
   iii. **AVG** - Anti-Virus Guard
   iv. **OS** - Operating System

GROUP B

Short answer questions

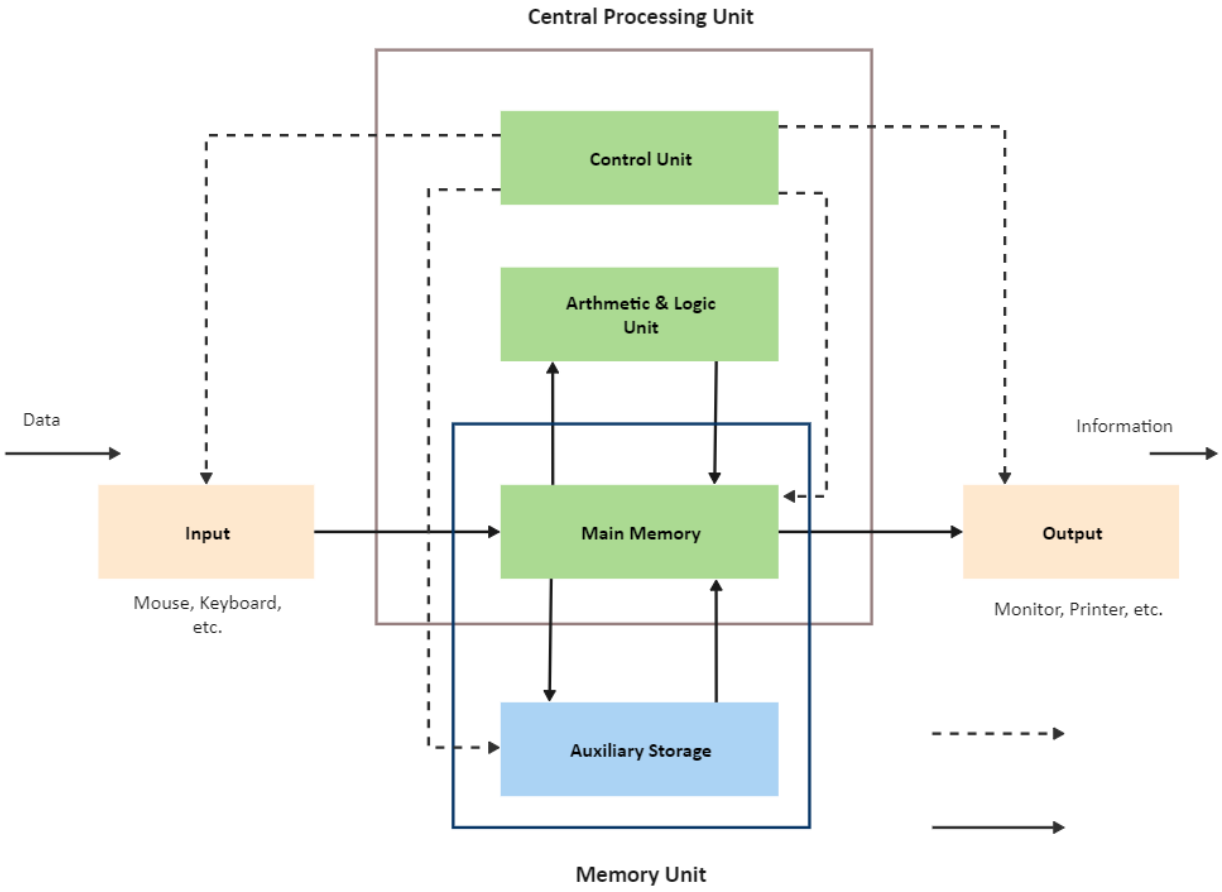
1. **What is CPU? What are the different sections of CPU?**

   - The **CPU** (Central Processing Unit) is the brain of the computer, responsible for executing instructions and processing data. The main sections of the CPU are:

   - **ALU (Arithmetic Logic Unit)**: Performs arithmetic and logical operations.
   - **CU (Control Unit)**: Directs the operations of the computer by interpreting instructions.
   - **Registers**: Small, fast storage areas used to hold data temporarily during processing.
   - **Cache**: A small, high-speed memory that stores frequently accessed data for quicker access.

2. **What do you mean by computer system? Draw a neat diagram of it.**

   - A **computer system** is a combination of hardware and software that works together to perform tasks.



3. **What is machine-level language? Write down any four advantages of high-level language.**

   - **Machine-level language** is the lowest level of programming language, consisting of binary code (0s and 1s) that a computer's CPU can directly execute.

   Advantages of high-level language:

   I. Easier to understand and write as it uses human-readable syntax.
   II. More portable across different systems and platforms.
   III. Enables faster development due to higher abstraction.

IV. Includes built-in libraries and functions for easier programming.

4. **Explain the role of Requirement Analysis and Documentation in software development.**

- Requirement Analysis involves gathering and defining what the software needs to do based on user needs, business goals, and technical constraints. It helps ensure the right software is built.

Documentation provides detailed records of the software requirements, design, and development process. It serves as a reference throughout the development cycle and aids in future maintenance.

5. **What is computer network? What are the differences between client and server?**

- A **computer network** is a system that connects computers and other devices to share resources and data.

Differences between client and server:

Client: A device or program that requests services or resources from a server.

Server: A device or program that provides services or resources to clients.

6. **What is SDLC? Write down the different stages of SDLC.**

- SDLC (Software Development Life Cycle) is a process used by software developers to design, develop, test, and maintain software.

The stages of SDLC are:

1. **Requirement Gathering**: Collecting requirements from stakeholders.
2. **System Design**: Planning the architecture and system layout.
3. **Implementation**: Writing the code.
4. **Testing**: Checking for bugs and issues.
5. **Deployment**: Installing the software in the user environment.
6. **Maintenance**: Ongoing updates and bug fixes.

7. **Convert binary numbers into decimal numbers:**

- i. **11111111** (binary) = **255** (decimal)
- ii. **100000001** (binary) = **257** (decimal)

GROUP C

Long answer questions

1. **What is a flowchart? Draw a symbol used in a flowchart and write its work.**

- A **flowchart** is a diagrammatic representation of a process, showing the steps in sequential order with the help of various symbols. It is used to visualize algorithms or workflows, making it easier to understand and analyze processes.

Common flowchart symbols:

- **Oval (Start/End)**: Represents the beginning and end of the process.
- **Rectangle (Process)**: Denotes a process or operation, such as a calculation or action.
- **Parallelogram (Input/Output)**: Represents input or output operations, such as user input or display results.
- **Diamond (Decision)**: Represents a decision point, where a condition is evaluated (Yes/No).
- **Arrow (Flow line)**: Shows the direction of the flow of the process.

Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

2. **What is the importance of the storage unit in a computer system? Mention any four optical storage devices.**

   - The **storage unit** in a computer system is essential for storing data and instructions that the system needs to operate. It plays a crucial role in providing:

   - **Data retention**: Stores both temporary (RAM) and permanent (hard drives, SSDs) data for the computer's operation.
   - **Data access**: Enables fast retrieval of data by the CPU and other components.
   - **Program execution**: Stores software applications and operating systems required for running programs.
   - **Backup and archiving**: Facilitates the preservation of data for future use and recovery in case of system failure.

   Four optical storage devices:

   1. **CD (Compact Disc)**: A storage medium for storing data, commonly used for music, software, and smaller files.
   2. **DVD (Digital Versatile Disc)**: An optical storage device used to store larger amounts of data, such as videos and software applications.
   3. **Blu-ray Disc**: A high-capacity optical disc used for storing HD video, large files, and high-quality multimedia content.
   4. **Laser Disc**: An older optical disc used primarily for video storage and playback.

SET
9

Attempt all the questions

GROUP A

Very short answer questions

1. **What type of device is a computer?**
   - A **computer** is an electronic device used for processing, storing, and retrieving data. It is also a programmable machine that performs various tasks like calculations, data processing, and information storage.
2. **Why is Charles Babbage known as the father of the computer?**
   - Charles Babbage is known as the "father of the computer" because he conceptualized and designed the first mechanical computer, the **Analytical Engine**, which laid the foundation for modern computing.
3. **What is a database?**
   - A **database** is an organized collection of data stored electronically, typically in a structured format, making it easy to retrieve, manage, and update the information.
4. **What is a computer network?**
   - A **computer network** is a system of interconnected computers and devices that can communicate with each other and share resources, such as data, hardware, and software.
5. **What is machine language?**
   - Machine language is the lowest-level programming language composed of binary code (0s and 1s) that the computer's CPU directly executes. It consists of instructions that the machine can understand and perform without translation.
6. **What is multimedia?**
   - Multimedia refers to the use of various forms of media, such as text, images, audio, video, and animation, to present information in an interactive and engaging manner.
7. **What are peripheral devices?**
   - Peripheral devices are external devices connected to a computer that extend its capabilities, such as printers, scanners, mice, keyboards, and external storage devices.
8. **What is a computer?**
   - A **computer** is an electronic device that processes data and executes tasks based on instructions. It can perform calculations, store information, and execute software applications.
9. **Write the example of MAN.**
   - An example of a **MAN (Metropolitan Area Network)** is a network that connects computers and devices across a city or large campus, such as a university network or a city-wide Wi-Fi service.

10. **How many digits are used in a digital computer?**
- A **digital computer** uses **two digits**, 0 and 1, which are binary digits (bits) used to represent data and perform calculations.

GROUP B

Short answer questions

1. **What is an OS? Write down the advantages of Windows-based OS over DOS-based OS.**
- An **OS (Operating System)** is software that manages hardware resources and provides services for computer programs. It acts as an interface between the user and the computer hardware.

Advantages of Windows-based OS over DOS-based OS:

I. **Graphical User Interface (GUI)**: Windows provides a user-friendly graphical interface, while DOS is text-based.
II. **Multitasking**: Windows allows multiple programs to run simultaneously, whereas DOS can run only one program at a time.
III. **Better hardware support**: Windows supports a wider range of hardware and peripherals compared to DOS.

2. **What is an icon? Name any two default icons of the desktop.**
- An **icon** is a small graphical representation of a program, file, or function on the desktop or within an application.

Two default icons of the desktop are:

I. **My Computer** (or **This PC**)
II. **Recycle Bin**

3. **What is open-source software? Write any two examples of DBMS.**
- **Open-source software** is software whose source code is freely available to the public for modification, distribution, and use.
- Two examples of **DBMS (Database Management Systems)** are:

I. **MySQL**
II. **PostgreSQL**

4. **What is MS-Access? List any two features of MS-Access.**
- **MS-Access** is a relational database management system developed by Microsoft, used to store and manage data in a structured way.

- Two features of MS-Access:

I. **Query Design**: Allows users to create queries to retrieve specific data from tables.
II. **Forms and Reports**: Provides tools to create custom forms for data entry and reports for displaying results.

5. **What is memory unit? List major types of primary memory.**
- The **memory unit** in a computer is a component that stores data and instructions for immediate access by the CPU.

Major types of primary memory:

I. **RAM (Random Access Memory)**: Temporary memory used to store data and instructions while the system is running.
II. **ROM (Read-Only Memory):** Non-volatile memory used in computers and electronic devices to store data that does not change frequently.

6. **Define computer network with its any two advantages.**

- A **computer network** is a group of interconnected computers and devices that share resources and communicate with each other.

Two advantages of a computer network:

I. **Resource Sharing**: Allows multiple devices to share hardware, software, and data.

II. **Communication**: Facilitates easy communication through emails, chats, and video calls.

7. **Convert decimal number into binary number:**

- i. **555** (decimal) = **1000101011** (binary)
- ii. **888** (decimal) = **1101111000** (binary)

GROUP C

Long answer questions

1. **Definition of Operating System & Explanation of GUI and CUI-based OS**

- An **Operating System (OS)** is system software that acts as an interface between computer hardware and the user. It manages hardware resources and provides essential services for computer programs. The OS handles tasks such as memory management, process scheduling, file management, and device control, ensuring smooth system operation.

GUI-Based OS (Graphical User Interface)

- A **GUI-based Operating System** allows users to interact with the system using visual elements such as windows, icons, menus, and buttons. It provides an intuitive and user-friendly environment, making it easy to navigate without requiring command-line instructions.

- **Windows OS**: Developed by Microsoft, Windows provides a graphical desktop environment with icons, taskbars, and a Start menu for user interaction.
- **macOS**: Developed by Apple, macOS features an intuitive GUI, multi-touch gestures, and a visually appealing interface with features like the Dock and Mission Control.

CUI-Based OS (Command-Line User Interface)

- A **CUI-based Operating System** requires users to interact through text-based commands. It is efficient for experienced users who prefer a keyboard-based interface but has a steeper learning curve than GUI-based systems.

- **MS-DOS (Microsoft Disk Operating System)**: A widely used command-line OS in the early days of computing, where users had to type commands like dir, copy, and del to perform tasks.
- **Linux (CLI Mode)**: Linux can operate in a command-line interface mode, where users execute commands like ls, cd, and mkdir to manage files and processes.

2. **Algorithm & Flowchart to Find the Greatest of Three Numbers**

Algorithm:

1.Start

2.Input three different numbers: A, B, and C

3.Compare A with B and C:

- If A > B and A > C, then A is the greatest

4.Compare B with A and C:

- If B > A and B > C, then B is the greatest

5.Otherwise, C is the greatest

6.Display the greatest number

7.End

Flowchart:

Flowchart to find the greatest of three numbers:

Note: *Answer related to this question is already given on Set VI, Group C, Question No. 1.*

SET
10

Attempt all the questions

GROUP A

Very short answer questions

1. **What is an output device?**
   - An output device is a hardware component that receives and displays or produces results from a computer, such as a monitor or printer.
2. **What is the set of programs which make a computer work?**
   - The set of programs that make a computer work is called **system software**, with the **Operating System (OS)** being the main component.
3. **What is the device that displays output in printed form?**
   - A **printer** is the device that displays output in printed form.
4. **Write the technical term for worldwide networks of networks.**
   - The technical term for the worldwide network of networks is the **Internet**.
5. **What does CUI stand for?**
   - CUI stands for **Command-Line User Interface**.
6. **What does LCD stand for?**
   - LCD stands for **Liquid Crystal Display**.
7. **What is a cell?**
   - In a spreadsheet, a **cell** is the intersection of a row and a column where data is entered.
8. **How many supercomputers are there in Nepal?**
   - As of now, Nepal has **one** supercomputer, located at **Nast (Nepal Academy of Science and Technology)**.
9. **Who is known as the first programmer?**
   - Ada Lovelace is known as the first programmer.
10. **How many vacuum tubes were used in the first electronic computer?**
    - The first electronic computer, **ENIAC**, used **17,468 vacuum tubes**.

GROUP B

Short answer questions

1. **What are the differences between a compiler and an interpreter?**

Feature	Compiler	Interpreter
Execution	Translates the entire program at once before execution	Translates and executes line by line
Speed	Faster as it translates the whole code before running	Slower as it translates each line separately
Error Detection	Detects all errors after compilation	Detects errors line by line
Example	C, C++ (use compilers)	Python, JavaScript (use interpreters)

2. **What do you know about free and open-source software? Write four examples of it.**
   - **Free and Open-Source Software (FOSS)** refers to software that can be freely used, modified, and distributed. The source code is openly available, allowing users to improve and customize it.
   Examples:
   I. Linux
   II. Mozilla Firefox
   III. LibreOffice
   IV. MySQL
3. **What are the objects of MS-Access? Write down any five data types used in Access.** - **Objects of MS-Access:**
   I. **Tables** – Store structured data.
   II. **Queries** – Retrieve and manipulate data.
   III. **Forms** – Provide a user-friendly interface for data entry.
   IV. **Reports** – Format and display data for printing.
   V. **Macros & Modules** – Automate tasks and add programming functionality.
   - Five data types in MS-Access:
   I. Text
   II. Number
   III. Date/Time
   IV. Currency
   V. Yes/No
4. **What is a computer virus? Write safety measures from computer viruses.**
   - A **computer virus** is a malicious program that can infect and spread across systems, causing data loss, corruption, and system slowdowns.
   Safety Measures:
   1. Install and update antivirus software.
   2. Avoid downloading files from untrusted sources.
   3. Do not open unknown email attachments.

4. Keep the operating system and software updated.
5. Use strong passwords and enable firewalls.

5. **What are the differences between an algorithm and a flowchart?**

Feature	Algorithm	Flowchart
Definition	A step-by-step procedure to solve a problem	A diagrammatic representation of an algorithm
Representation	Written in text format using steps	Uses symbols like ovals, rectangles, and arrows
Complexity	Easier to write and modify	More visual and structured
Example	Sorting algorithm	Flowchart for ATM withdrawal

6. **What is a function? Write about any two functions supported by MS-Excel.**

- A **function** is a predefined formula in MS-Excel that performs calculations or operations on data.

Two functions in MS-Excel:

I. **SUM()** – Adds a range of numbers. Example: =SUM(A1:A5)

II. **IF()** – Performs a logical test and returns different values based on the condition. Example: =IF(A1>50, "Pass", "Fail")

7. **Add the following binary numbers:**

i. **110 + 101**

ii. **101 + 111**

GROUP C

Long answer questions

1. (a) Algorithm to Find the Sum of Any Five Non-Negative Numbers

1. **Start**
2. **Initialize** sum = 0
3. **Input** five non-negative numbers (A, B, C, D, E)
4. **Calculate** sum = A + B + C + D + E
5. **Display** the sum
6. **End**

(b) QBASIC Program to Convert Paisa into Rupees and Paisa

```
CLS
INPUT "Enter the value in paisa: ", paisa
LET rupees = (paisa / 100)
remaining_paisa = paisa MOD 100
PRINT "Equivalent amount: "; rupees; " Rupees and "; remaining_paisa; " Paisa"
END
```

2. (a) What is a Browser? Give Any Four Examples.

- A **browser** is a software application used to access and navigate websites on the Internet. It interprets HTML, CSS, and JavaScript to display web pages. Browsers allow users to interact with websites, watch videos, and perform online activities.

Examples of Web Browsers:

I. **Google Chrome** – A fast and widely used browser developed by Google.
II. **Mozilla Firefox** – An open-source browser known for privacy features.
III. **Microsoft Edge** – The default browser for Windows, built on Chromium.
IV. **Apple Safari** – The default browser for macOS and iOS devices.

2. (b) HTML Code to Display Given Output

HTML CHEAT SHEET

Basic HTML Structure

```
<html>
 <head>
  <title>website title</title>
 </head>
 <body>
  content of website ...
 </body>
</html>
```

Common Tags for Blogs

`<h?> heading </h?>`	Heading (h1 for largest to h6 for smallest)
`<p> paragraph </p>`	Paragraph of Text
`<b> bold </b>`	Make text between tags **bold**
`<i> italic </i>`	Make text between tags *italic*
`<a href="url"> link name </a>`	Create a link to another page or website
`<div> ... </div>`	Divide up page content into sections, and applying styles
`<img src="filename.jpg">`	Show an image
`<ul> <li> list </li> </ul>`	Unordered, bullet-point list
` `	Line Break (force a new line)
`<span style="color:red"> red </span>`	Use CSS style to change text colour

Text Formatting

`<h?> ... </h?>`	Heading (?= 1 for largest to 6 for smallest, eg h1)
`<b> ... </b>`	Bold Text
`<i> ... </i>`	Italic Text
`<u> ... </u>`	Underline Text
`<strike> ... </strike>`	Strikeout
`<sup> ... </sup>`	Superscript – Smaller text placed below normal text
`<sub> ... </sub>`	Subscript – Smaller text placed below normal text
`<small> ... </small>`	Small – Fineprint size text
`<tt> ... </tt>`	Typewriter Text
`<pre> ... </pre>`	Pre-formatted Text
`<blockquote> ... </blockquote>`	Text Block Quote
`<strong> ... </strong>`	Strong – Shown as Bold in most browsers
`<em> ... </em>`	Emphasis – Shown as Italics in most browsers
`<font> ... </font>`	Font tag obsolete, use CSS. (*)

Section Divisions

`<div> ... </div>`	Division or Section of Page Content
`<span> ... </span>`	Section of text within other content
`<p> ... </p>`	Paragraph of Text
` `	Line Break
`<hr>`	Basic Horizontal Line
`<hr>` Tag Attributes:	
`size="?"`	Line Thickness in pixels
`width="?"`	Line Width in pixels
`width="??%"`	Line Width as a percentage
`color="#??????"`	Line Colour (*)
`align="?"`	Horizontal Alignment: `left, center, right` (*)
`noshade`	No 3D cut-out
`<nobr> ... </nobr>`	Line Break

Images

`<img src="url" alt="text">`	Basic Image
<img> Tag Attributes:	
`src="url"`	URL or filename of image (required!)
`alt="text"`	Alternate Text (required!)
`align="?"`	Image alignment within surrounding text (*)
`width="??"`	Image width (in pixels or %)
`height="??"`	Image height (in pixels or %)
`border="??"`	Border thickness (in pixels) (*)
`vspace="??"`	Space above and below image (in pixels) (*)
`hspace="??"`	Space on either side of image (in pixels) (*)

Linking Tags

`<a href="url"> link text </a>`	Basic Link
<a> Tag Attributes:	
`href="url"`	Location (url) of page to link to.
`name="??"`	Name of link (name of anchor, or name of bookmark)
`target="?"`	Link target location: `_self`, `_blank`, `_top`, `_parent`.
`href="url#bookmark"`	Link to a bookmark (defined with `name` attribute).
`href="mailto:email"`	Link which initiates an email (dependant on user's email client).

Lists

`<ol> ... </ol>`	Ordered List
`<ul> ... </ul>`	Un-ordered List
`<li> ... </li>`	List Item (within ordered or unordered)
`<ol type="?">`	Ordered list type: `A`, `a`, `I`, `i`, `1`
`<ol start="??">`	Ordered list starting value
`<ul type="?">`	Unordered list bullet type: `disc`, `circle`, `square`
`<li value="??">`	List Item Value (changes current and subsequent items)
`<li type="??">`	List Item Type (changes only current item)
`<dl> ... </dl>`	Definition List
`<dt> ... </dt>`	Term or phrase being defined
`<dd> ... </dd>`	Detailed Definition of term

Frames

`<frameset> ... </frameset>`	Define the set of Frames
<frameset> Tag Attributes:	
`rows="??,??, ..."`	Define row sizes & number of rows (size in pixels or %)
`cols="??,??, ..."`	Define column sizes & number of columns (size in pixels or %)
`noresize="noresize"`	User cannot resize any frames in frameset
`<frame> ... </frame>`	Define a frame within the frameset
<frame> Tag Attributes:	
`src="url"`	Location of HTML File for a frame
`name="***"`	Unique name of frame window
`marginwidth="?"`	Horizontal margin spacing inside frame (pixels)
`marginheight="?"`	Vertical margin spacing inside frame (pixels)
`noresize="noresize"`	Declare all frameset sizes as fixed
`scrolling="***"`	Can the user scroll inside the frame: `yes`, `no`, `auto`
`frameborder="?"`	Frame Border: (`1`=yes, `2`=no)
`bordercolor="#??????"`	Border Colour (*)
`<noframes> ... </noframes>`	Unframed content (for browsers not supporting frames)

Tables

`<table> ... </table>`	Define a Table
<table> Tag Attributes:	
`border="?"`	Thickness of outside border
`bordercolor="#??????"`	Border Colour
`cellspacing="?"`	Space between cells (pixels)
`cellpadding="?"`	Space between cell wall and content
`align="??"`	Horizontal Alignment: `left, center, right` (*)
`bgcolor="#??????"`	Background Colour (*)
`width="??"`	Table Width (pixels or %) (*)
`height="??"`	Table Height (pixels or %) (*)
`<tr> ... </tr>`	Table Row within table
`<th> ... </th>`	Header Cell within table row
`<td> ... </td>`	Table Cell within table row
<td> Tag Attributes:	
`colspan="?"`	Number of columns the cell spans across (cell merge)
`rowspan="?"`	Number of row a cell spans across (cell merge)
`width="??"`	Cell Width (pixels or %) (*)
`height="??"`	Cell Height (pixels or %) (*)
`bgcolor="#??????"`	Background Colour (*)
`align="??"`	Horizontal Alignment: `left, center, right` (*)
`valign="??"`	Vertical Alignment: `top, middle, bottom` (*)
`nowrap`	Force no line breaks in a particular cell

QBASIC CHEAT SHEET

1. PRINTING OUTPUT

qbasic Copy Edit

```
PRINT "Hello, World!"
PRINT "Sum =", 5 + 3
PRINT "Name"; " John"   'Semicolon avoids new line
```

2. VARIABLES & DATA TYPES

qbasic Copy Edit

```
A$ = "Hello"    'String Variable (ends with $)
A% = 10         'Integer Variable
A! = 3.14       'Single-precision float
A# = 2.718281   'Double-precision float
```

3. INPUT FROM USER

qbasic Copy Edit

```
INPUT "Enter your name: "; Name$
PRINT "Hello, "; Name$
```

4. CONDITIONAL STATEMENTS

qbasic Copy Edit

```
IF age >= 18 THEN
    PRINT "You are an adult."
ELSE
    PRINT "You are a minor."
END IF
```

5. LOOPS

FOR Loop

qbasic Copy Edit

```
FOR i = 1 TO 5
    PRINT "Iteration: "; i
NEXT i
```

WHILE Loop

```qbasic
WHILE x < 10
    PRINT x
    x = x + 1
WEND
```

DO WHILE Loop

```qbasic
DO
    PRINT x
    x = x + 1
LOOP WHILE x < 10
```

6. ARRAYS

```qbasic
DIM A(5)    'Declare an array with 6 elements (0 to 5)
A(1) = 100
PRINT A(1)
```

7. FUNCTIONS & SUBROUTINES

Using Function

```qbasic
FUNCTION Square(X)
    Square = X * X
END FUNCTION
PRINT Square(5)
```

Using Subroutine

qbasic Copy Edit

```
SUB ShowMessage
    PRINT "Hello from subroutine!"
END SUB
CALL ShowMessage
```

8. STRING FUNCTIONS

qbasic Copy Edit

```
A$ = "QBasic"
PRINT LEN(A$)      ' Length of string
PRINT LEFT$(A$, 2) ' Leftmost 2 chars
PRINT RIGHT$(A$,3) ' Rightmost 3 chars
PRINT MID$(A$, 2, 3) ' 3 chars from position 2
```

9. RANDOM NUMBERS

qbasic Copy Edit

```
RANDOMIZE TIMER
PRINT INT(RND * 10) + 1   ' Random number between 1 and 10
```

10. GRAPHICS MODE

qbasic Copy Edit

```
SCREEN 12
LINE (10, 10)-(200, 200), 4  'Draw line from (10,10) to (200,200) in red
CIRCLE (100, 100), 50, 2     'Draw circle with radius 50 in green
```

11. FILE HANDLING

qbasic Copy Edit

```
OPEN "data.txt" FOR OUTPUT AS #1
PRINT #1, "Hello, File!"
CLOSE #1
```