Chapter # 5
Software System

Student Learning Outcomes

By the end of this chapter, you will be able to:

- Identify and explain the significance of system software and application software.
- Understand the role and main functions of system software.
- Explain how operating systems manage hardware resources, provide user interfaces, and run applications.
- Describe how utility software enhances system performance, security, and maintenance.
- Understand how device drivers facilitate communication between hardware devices and the operating system.
- Recognize the main functions of commonly used application software, such as word processing, spreadsheet, presentation, and graphic design applications.
- Discuss the uses and significance of various application software in different domains (e.g., business, education, graphics design, etc).
- Differentiate between system software (e.g., operating systems, utility software, device drivers) and application software in terms of their roles and functions.
- Proficiently use prominent system software including operating systems, utility software, and device drivers.
- Navigate the user interface, manage files, and perform system tasks using operating systems.
- Utilize utility software and tools for optimizing system performance and maintaining security. Install, update, and troubleshoot device drivers for various hardware components
- Use commonly used application software to perform specific tasks or create content (e.g., word processing, spreadsheets, presentations).
- Identify appropriate software tools for specific tasks, taking into account their functions and capabilities.
- Use application software for productivity, creativity, and communication purposes.
- Demonstrate and differentiate between system software and application software, understanding their roles within a computer system.

Subject Questions & Answers

5.1 SOFTWARE

Q.1: Explain the difference between System Software and Application Software, providing examples for each type and point out their respective purposes, installations, and how they interact with each other.

Ans. Software:

A Software is a collection of programs and instructions that tell a computer what to do and how to do. Without software, computers would be useless machines.

Types of Software:

System Software: A System software is designed to manage the system resources and provide a platform for application software to run. It acts as a bridge between the hardware and the user applications. Here are some examples:

Operating Systems: Examples: These include Microsoft Windows, macOS, and Linux.

Device Drivers: These include printer drivers, graphics card drivers, and soundcard drivers.

Utility Programs: Examples: These are antivirus software, disk cleanup tools, and backup software.

Application Software: An Aplication software is designed to help users perform specific tasks. These programs are built to fulfill user needs and are typically more varied than system software.

Examples Include:

- **Word Processors:** Such as Microsoft Word and Google Docs.
- **Web Browsers:** Such as Google Chrome, Mozilla Firefox, and Safari.
- **Games:** Such as Minecraft, Fortnite, and Among Us.
- **Media Players:** Such as VLC Media Player and Windows Media Player.

Differentiate Between System Software and Application Software:

- **Purpose:** System software manages and operates computer hardware, making it possible for application software to run. Application software helps the user to perform specific tasks.
- **Examples:** A System software includes operating systems and device drivers. Application software includes word processors, web browsers, and games.
- **Installation:** System software is usually pre-installed on a computer, while application software can be installed by the user as needed.

Q.2: Explain the role of An Operating System in managing hardware resources and providing a user interface. Provide relevant examples to illustrate your points.

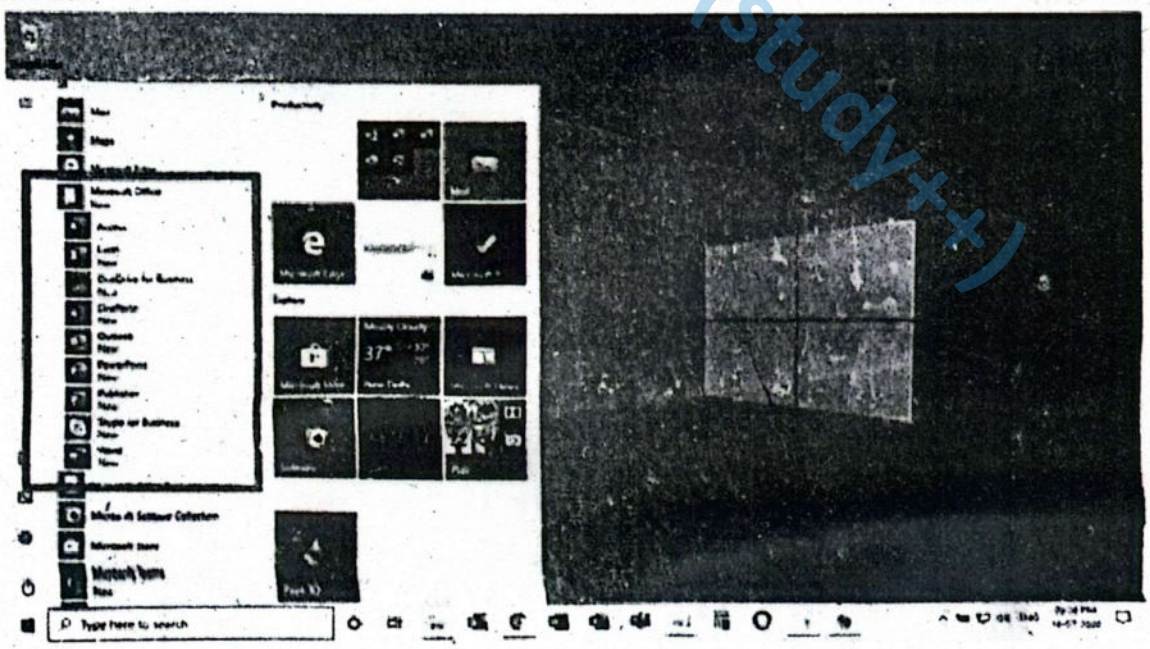
Ans. Introduction to System Software:

A System software is essential for the operation of a computer system, acting as an intermediary between the hardware and the user applications. It ensures that the hardware components of a computer work together efficiently and provides a stable environment for application software to run. Here, we discuss the role and main functions of system software in detail.

Operating System:

An Operating System (OS) is a type of system software that manages all the hardware and software on a computer. It acts as an intermediary between the computer hardware and the user applications. An operating system ensures that different programs and users running on a computer do not interfere with each other. It also provides a stable and consistent way for applications to interact with the hardware without having to know all the details of the hardware. Some most commonly used operating systems are:

- **Windows:** A popular OS for personal computers developed by Microsoft. It has a start menu, taskbar, and windows for applications.
- **macOS:** An OS for Apple's Mac computers. It has a dock at the bottom of the screen and unique features like Mission Control.
- **Linux:** An open-source OS that is used for everything from servers to desktop computers. It can look different depending on the distribution you use.
- **Android:** An OS for smartphones and tablets, developed by Google. It is used on many different devices from various manufacturers.
- **IOS:** An OS for iPhones and iPads, developed by Apple. It is known for its smooth performance.



Let's study some key functions of an operating system:

Managing Hardware Resources: One of the primary functions of an operating system is to manage the hardware resources of a computer system. This includes the CPU, memory, disk drives, and peripheral devices such as printers and keyboards. The OS ensures that each application gets the necessary resources to function correctly without interfering with other applications.

Examples: When you open a web browser while listening to music on your computer, the operating system allocates CPU time and memory to both the web browser and the music player. It ensures that both applications run smoothly by managing the resources effectively.

Providing a User Interface: The operating system provides a User Interface (UI) that allows users to interact with the computer.

There are two main types of User Interfaces:

- Graphical User Interfaces (GUIs)
- Command-Line Interfaces(CLIs).

Graphical User Interface (GUIs):

A GUI allows users to interact with the computer using visual elements such as windows, icons, and menus. This type of interface is user-friendly and intuitive, making it easy for users to navigate and perform tasks.

Example: Microsoft Windows and macOS are operating systems that use GUIs. Users can click on icons to open applications, drag and drop files to move them, and use menus to access different functions.

Command-Line Interface (CLIs):

A CLI requires users to type text commands to perform specific tasks. This interface is more flexible and powerful, but it can be more difficult for beginners to use.

Examples: Linux and Disk Operating System (DOS) provide CLIs. Use can type commands to copy files, run programs, and configure system settings.

Running Applications: The operating system is responsible for running applications on a computer. It loads applications into memory, allocates the necessary resources, and manages their execution. The OS also ensures that applications do not interfere with each other and that they run efficiently.

Examples: When you open a word processor like Microsoft Word, the operating system loads the application into the computer's memory and allocates CPU time for it to run. If you open multiple applications, the OS manages the distribution of resources so that all applications can run simultaneously without performance issues.

5.2.2 UTILITY PROGRAMS

Q.3: Discuss the importance of these utility programs in ensuring the smooth operation and efficient management of a computer system.

Ans. Utility Programs:

Utility programs are essential components of system software that enhance the functionality of a computer system. They perform various tasks to ensure smooth operation and efficient management of hardware, software, and data. Here are some common utility programs along with their functionalities in real-life scenarios.

- **Disk Cleanup Functionality:** Disk Cleanup scans your hard drive for temporary files, cache files, and other unnecessary items that can be safely deleted.
- **Real-life Scenario:** After using your computer for a while, you notice it's running slower than usual. Running Disk Cleanup can help reclaim disk space, potentially improving performance.

Antivirus Software:

- **Functionality:** Antivirus Software scans files and incoming data for known viruses and malware signatures. It also provides real-time protection to prevent virus attacks.
- **Real-life Scenario:** You receive an email attachment from an unknown sender. Before opening it, you run your antivirus software to scan for any potential threats, ensuring your computer remains safe.

Backup Software:

- **Functionality:** Backup Software schedules regular backups of files and folders to external drives, cloud storage, or network locations. It allows for full system backups or selective file backups.
- **Real-life Scenario:** You accidentally delete an important presentation file. Using backup software, you retrieve the latest backup version of the file, ensuring minimal disruption to your work.

File Compression Tools:

Functionality: File compression tools compress one or multiple files into a single archive format (e.g., ZIP, RAR) while preserving data integrity. They also provide options for encryption and password protection.

Real-life Scenario: You need to send a large folder of high-resolution photos via email. Using a file compression tool, you create a ZIP archive to reduce file size, making it easier and quicker to upload and send. These utility programs are essential for maintaining the efficiency, security, and reliability of your computer system. Understanding their functionalities can help you better manage and optimize your computing experience.

Device Drivers: Device drivers facilitate communication between hardware devices and the operating system, ensuring that devices function correctly. Imagine your computer as a super hero with many powers, but sometimes it needs help to talk to its gadgets, like a printer, keyboard, or mouse. This is where device drivers come in. A device driver is like a translator between the computer and its gadgets.

- **Printer Driver:** It helps the computer sends the correct signals to the printer, so it can print documents.
- **Graphics Card Driver:** Makes sure the computer can display images and videos correctly on the screen.

How Device Drivers Work?

1. **Installation:** When you connect a new device to your computer, you often need to install a driver.
2. **Communication:** The driver acts as a translator, converting general instructions from the computer into specific instructions that the device can understand.
3. **Operation:** Once installed, the driver helps the computer and the device to work together smoothly.

Real-Life Analogy: TV Remote Control

Think of a device driver like a TV Remote & Control:

- **TV (Device):** It can change channels, adjust the volume, and more, but it needs instructions.
- **Remote Control (Driver):** It sends the correct signals to the TV to perform these actions.
- **You (Computer):** You decide what you want to watch or adjust and use the remote control to tell the TV.

5.2.3 DEVICE DRIVERS

Q.4: Explain the concept of device drivers and their importance in the functioning of a computer system.

Ans. Device Drivers:

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5.3 APPLICATION SOFTWARE

Q.5: Explain the different types of application software commonly used, including their specific functionalities and examples.

Ans. Application Software:

An Application software refers to program designed to perform specific tasks for users, ranging from productivity and creativity to entertainment and education. These software applications utilize the capabilities of the underlying operating system and hardware to fulfill user needs effectively. Here are some common types of application software along with their functionalities and class activities:

Commonly used Application Software:

Word Processing Software: A Word Software processing software is a type of

application software used for creating, editing, formatting, and printing documents. These software programs are essential tools for writing letters, reports, essays, and other text-based documents. Word processors offer a variety of features that enhance the writing and editing process, making it easier for users to produce professional-quality documents.

Examples of Word Processing Software:

- **Microsoft Word:** Available on Windows and macOS, Microsoft Word is one of the most widely used word processors. It offers a range of features including text formatting, spell check, grammar check, and the ability to insert images, tables, and charts.
- **Google Docs:** A web-based word processor available on any operating system with internet access. Google Docs allows for real-time collaboration, where multiple users can edit a document simultaneously. It also integrates with other Google services.
- **Apple Pages:** Available on macOS and iOS, Apple Pages provides a user-friendly interface with powerful tools for creating beautiful documents. It includes templates, design tools, and easy integration with other Apple products.

LibreOffice Writer: Available on Windows, macOS, and Linux, Libre Office Writer is a free and open-source word processor. It offers a robust set of features similar to Microsoft Word, making it a great alternative for users who prefer open-source software.

Spreadsheet Software:

A Spreadsheet software is a type of application software used for organizing, analyzing, and storing data in tabular form. Spreadsheets consist of a grid of cells arranged in rows and columns, where users can input data, perform calculations, and create charts. This software is essential for tasks such as budgeting, financial analysis, data management, and statistical analysis.

Examples of Spreadsheet Software:

- **Microsoft Excel:** Available on Windows and macOS, Microsoft Excel is one of the most widely used spreadsheet programs. It offers powerful features including complex formulas, pivot tables, and a variety of chart options.
- **Google Sheets:** A web-based spreadsheet available on any operating system with internet access. Google Sheets allows for real-time collaboration, where multiple users can edit a spreadsheet simultaneously. It also integrates with other Google Services.
- **Apple Numbers:** Available on macOS and iOS, Apple Numbers provides a user-friendly interface with strong visualization tools for creating visually appealing spreadsheets. It includes templates and easy integration with other Apple products.
- **LibreOffice Calc:** Available on Windows, macOS, and Linux, LibreOffice Calc is a free and open-source spreadsheet program. It offers a robust set of features similar to Microsoft Excel, making it a great alternative for users who prefer open-source software.

Graphic Design Software:

A Graphic design software is a type of application software used for creating,

editing, and managing visual content. These programs provide tools for drawing, painting, photo editing, and creating illustrations, making them essential for designers, artists, and anyone involved in visual media. Graphic design software is used in various industries, including advertising, web design, publishing, and multimedia production.

Examples of Graphic Design Software:

- **Adobe Photoshop:** Available on Windows and macOS. Adobe Photoshop is one of the most popular graphic design programs. It offers powerful tools for photo editing, digital painting, and graphic design.
- **Adobe Illustrator:** Available on Windows and macOS. Adobe Illustrator is a vector graphics editor used to create logos, illustrations, and scalable graphics that maintain quality at any size.
- **CorelDRAW:** Available on Windows and macOS, CorelDRAW is a vector graphics editor known for its user-friendly interface and robust feature set, ideal for creating professional graphics and layouts.

GNU Image Manipulation Program (GIMP):

Available on Windows, macOS, and Linux, GIMP is a free and open-source graphic design program. It offers many features similar to Adobe Photoshop, making it a great alternative for users who prefer open-source software.

Canva: A web-based graphic design tool accessible on any operating system with internet access. Canva provides an easy-to-use interface with a wide range of templates and design elements, making it perfect for beginners and professionals alike.

5.3.1.1 WORD PROCESSING SOFTWARE

Q.6: Discuss the features and benefits of Word Processing Software and elaborating on their unique features and target audience.

Ans. Word Processing Software:

A Word processing software is a type of application software used for creating, editing, formatting, and printing documents. These software programs are essential tools for writing letters, reports, essays, and other text-based documents. Word processors offer a variety of features that enhance the writing and editing process, making it easier for users to produce professional-quality documents.

Examples of Word Processing Software:

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5.3.1.2 SPREADSHEET SOFTWARE

Q.7: Explain the functions and benefits of Spreadsheet Software, providing examples of widely used spreadsheet applications.

Ans. Spreadsheet Software:

Spreadsheet software is a type of application software used for organizing, analyzing, and storing data in tabular form. Spreadsheets consist of a grid of cells arranged in rows and columns, where users can input data, perform calculations, and create charts, This software is essential for tasks such as budgeting, financial analysis, data management, and statistical analysis.

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5.3.1.3 GRAPHIC DESIGN SOFTWARE

Q.8: Describe the key features of various Graphic Design Software programs, their strengths and weaknesses, and discuss how they cater to different user needs.

Ans. Graphic Design Software:

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Conceptual Long Questions

Q.1: How do these Utility Programs contribute to the overall user experience?

Ans. Utility Programs:

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Disk Cleanup: Functionality:

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Q.2: Discuss how Device Drivers work by using a real-life analogy and provide examples of different types of device drivers.

Ans. Device Drivers:

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operating system, ensuring that devices function correctly. Think of your computer as a superhero with many powers, but sometimes it needs help communicating with its gadgets, like a printer, keyboard, or mouse. This is where device drivers come in. A device driver is like a translator between the computer and its gadgets

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Q.3: Explain the significance of Graphic Design Software in various industries, discussing its applications and the advantages it offers to designers, artists, and anyone involved in visual media.

Ans. Graphic Design Software:

A Graphic design software is a type of application software used for creating, editing, and managing visual content. These programs provide tools for drawing, painting, photo editing, and creating illustrations, making them essential for designers, artists, and anyone involved in visual media. A Graphic design software is used in various industries, including advertising, web design, publishing, and multimedia production.

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Summary

- System Softwares include all the programs and applications that enable us to perform specific tasks on a computer.
- The primary objective of software as a system is to manage hardware resources and provide a platform for applications to run smoothly.
- A System software manages the hardware and basic system operations, while application software helps users perform specific tasks.
- The main functions of system software include managing hardware resources, providing a user interface, and running applications.
- Utility software, enhances system performance and ensures security and maintenance, and device drivers, which facilitate communication between hardware devices and the operating system.
- In business, application software, streamlines, operations, improves productivity, and enhances communication.
- In education, application software enhances the learning experience, improves administrative efficiency, and facilitates communication between teachers, students, and parents.

Additional MCQs

5.1 SOFTWARE

1. **What is the primary function of software?**
   (a) To control the physical components of a computer.
   (b) To provide instructions for a computer to follow.
   (c) To store data and file. (d) To connect a computer to the internet.

2. **Which type of software acts as a bridge between hardware and user applications?**
   (a) Application software (b) System software
   (c) Utility software (d) Operating system
3. **Which of the following is NOT an example of system software?**
   (a) Microsoft Window (b) Antivirus software
   (c) Google Chrome (d) Device driver
4. **What is the primary purpose of application software?**
   (a) To manage the computer's resource
   (b) To help users perform specific task (c) To connect to the internet
   (d) To provide a platform for other software
5. **Which of the following is an example of application software?**
   (a) Microsoft Word (b) Linux
   (c) Sound card driver (d) Disk cleanup tool
6- **Which of the following statements is TRUE about the installation of software?**
   (a) System software is usually installed by the user.
   (b) Application software is usually pre-installed on a computer.
   (c) Both system and application software are always pre-installed.
   (d) Both system and application software can be installed by the user.
7. **Which of the following is NOT a type of application software?**
   (a) Game (b) Web browser
   (c) Operating system (d) Word processor
8. **What is the main purpose of utility programs?**
   (a) To help users perform specific task
   (b) To manage the computer's resource
   (c) To help users troubleshoot and maintain their computer
   (d) To provide a platform for other software

5.2 INTRODUCTION TO SYSTEM SOFTWARE

9. **What is the main function of System Software?**
   (a) It acts as a bridge between hardware and user application.
   (b) It directly interacts with the user.
   (c) It stores data for the user. (d) It runs on a mobile device.
10. **Which operating system is developed by Google and used on smartphones and tablets?**
   (a) Windows (b) macOS (c) Android (d) iOS
11. **What is a primary function of an operating system?**
   (a) Creating document (b) Browsing the internet
   (c) Managing the computer's resource (d) Playing game
12. **What is the primary function of an operating system?**
   (a) To manage the hardware resources of a computer system.
   (b) To run web browser.
   (c) To play music file. (d) To create document

13. **Which of the following is NOT a hardware resource managed by an operating system?**
(a) CPU (b) Memory (c) Web Browser (d) Disk Drive

14. **What is a User Interface (UI)?**
(a) A way for users to interact with the computer.
(b) A type of software program.
(c) A hardware component. (d) A type of file format.

15. **What are the two main types of user interfaces?**
(a) Graphical User Interfaces (GUIs) and Command-Line Interfaces (CLIs).
(b) Windows and macOS.
(c) Icons and menus. (d) Web browsers and music players.

16. **What is a Graphical User Interface (GUI)?**
(a) A type of interface that uses text commands.
(b) A type of interface that uses visual elements like windows, icons, and menus.
(c) A type of interface that requires programming knowledge.
(d) A type of interface that is only found on Apple products.

17. **Which of the following operating systems uses a GUI?**
(a) Microsoft Window (b) macOS
(c) Both A and B (d) None of the above

18. **What does CLI stand for?**
(a) Command-Line Interface (b) Computer-Line Interface
(c) Command-Line Interaction (d) Computer-Line Interaction

19. **What is the primary function of an operating system in relation to applications?**
(a) To prevent applications from accessing the internet
(b) To store application files on the hard drive
(c) To manage the resources needed for applications to run efficiently
(d) To create new applications

20. **Which of the following is NOT a task that a CLI can typically be used for?**
(a) Running a program (b) Copying file
(c) Changing system setting (d) Opening a web browser

21. **What is the main benefit of using a Command-Line Interface (CLI)?**
(a) It is more user-friendly for beginner.
(b) It provides a more flexible and powerful way to interact with a computer.
(c) It allows users to access the internet more easily.
(d) It requires less memory to operate than a graphical interface.

22. **What is the primary reason why the operating system needs to manage the distribution of resources among multiple applications?**
(a) To ensure all applications have equal access to resources.
(b) To prevent applications from crashing.
(c) To ensure all applications can run simultaneously without performance issues.
(d) To allow users to install more applications.

23. What is the primary function of utility programs?

(a) To enhance the functionality of a computer system.
(b) To create new application.
(c) To design user interface.
(d) To develop operating system

24. Which utility program helps reclaim disk space by removing unnecessary files?

(a) Antivirus Software
(b) Backup Software
(c) Disk Cleanup
(d) System Monitor

25. What is the main purpose of antivirus software?

(a) To create backups of file.
(b) To manage hardware resource.
(c) To protect against viruses and malware.
(d) To optimize system performance.

26. Which utility program is essential for recovering lost data after accidental deletion?

(a) Disk Cleanup
(b) System Monitor
(c) Antivirus Software
(d) Backup Software

27. What is the primary benefit of using backup software?

(a) To prevent data loss from accidental deletion or hardware failure.
(b) To improve the speed of the computer.
(c) To remove unwanted files from the system.
(d) To secure the computer against malware attacks.

28. What kind of data is typically scanned by Disk Cleanup?

(a) System files only.
(b) User-created files only.
(c) Temporary files, cached files, and unnecessary items.
(d) All data on the hard drive.

29. What is the main purpose of file compression tools?

(a) To increase file size for better storage
(b) To reduce file size and make transfer faster
(c) To encrypt files and make them secure
(d) To organize files into folders

30. What is a real-life scenario to illustrate the use of file compression tools?

(a) Sending a large document via email
(b) Downloading a large video file
(c) Sending a large folder of high-resolution photos via email
(d) Creating a backup of important file

31. What is the role of device drivers in a computer system?

(a) To manage the operating system
(b) To facilitate communication between hardware devices and the operating system
(c) To create new hardware devices
(d) To store data on hard drives

32. What is the real-life analogy to explain the function of a device driver?

(a) A keyboard
(b) A printer
(c) A TV remote control
(d) A mouse

33. **Which of the following statements best describes a Plug and Play (PnP) device?**
(a) A device that requires manual configuration before use.
(b) A device that automatically configures itself when connected to a computer.
(c) A device that is only compatible with specific operating systems.
(d) A device that requires specialized software for installation.

5.3 APPLICATION SOFTWARE

34. **What is the primary function of word processing software?**
(a) To create and manage databases. (b) To design and develop websites.
(c) To create, edit, and format documents. (d) To play music and videos.

35. **Which of the following is an example of a web-based word processor?**
(a) Microsoft Word (b) Google Docs
(c) Apple Page (d) LibreOffice Writer

36. **Which word processor is known for its user-friendly interface and powerful tools for creating visually appealing documents?**
(a) Microsoft Word (b) Google Docs
(c) Apple Pages (d) LibreOffice Writer

37. **Which of the following is an example of spreadsheet software?**
(a) Microsoft Word (b) Adobe Photoshop
(c) Google Sheet (d) Audacity

38. **What is the primary purpose of spreadsheet software?**
(a) Creating music (b) Editing video
(c) Organizing and analyzing data (d) Writing document

39. **Which of the following spreadsheet software programs is available for free?**
(a) Microsoft Excel (b) Google Sheet
(c) Apple Number (d) LibreOffice Calc

40. **Which of the following features is NOT commonly found in spreadsheet software?**
(a) Formulas (b) Pivot tables (c) Image editing tools (d) Charts

41. **Which of the following is NOT an industry that uses graphic design software?**
(a) Advertising (b) Web design (c) Manufacturing (d) Publishing

42. **What is the main function of graphic design software?**
(a) Creating and editing visual content (b) Creating and playing music
(c) Managing databases (d) Writing and editing code

43. **Which of the following is an example of a tool used in graphic design software?**
(a) Drawing tools (b) Programming languages
(c) Audio editing softwares (d) Spreadsheet formulas

44. **What does the term "real-time collaboration" mean in the context of spreadsheet software?**
(a) Multiple users can work on the same spreadsheet simultaneously.
(b) The software automatically saves changes as they are made.

(c) The software can be used on multiple devices at once.
(d) The software can connect to external databases.

45. What is the function of a "cell" in a spreadsheet?
(a) A unit of storage for data (b) A type of formula
(c) A graphical element (d) A programming command

46. Which of the following file formats is commonly used to save spreadsheet documents?
(a) docx (b) xlsx (c) jpg (d) mp3

47. What is the primary objective of software as a system?
(a) To run applications smoothly (b) To manage hardware resources
(c) To provide a platform for applications (d) All of the above

48. What is the main purpose of Adobe Sensei in Photoshop and Illustrator?
(a) To create new graphic (b) To enhance image quality
(c) To automate repetitive tasks and suggest design element
(d) To provide a user interface

49. What type of software helps designers by automating repetitive tasks and suggesting design elements?
(a) System software (b) Application software
(c) Utility software (d) AI-based tools in graphic design software

50. Which of the following software is a free and open-source graphic design program?
(a) Adobe Photoshop (b) CorelDRAW (c) Canva (d) GIMP

51. What is the main advantage of using cloud-based graphic design tools?
(a) Requires high-end hardware (b) Limited accessibility
(c) Collaboration and access from anywhere (d) High cost

52. Which software is primarily used for vector graphics editing?
(a) Adobe Photoshop (b) Adobe Illustrator
(c) Microsoft Paint (d) GIMP

53. Which of the following tools is best for photo editing?
(a) Adobe Illustrator (b) Adobe Photoshop
(c) Canva (d) Inkscape

54. What does the term "vector graphics" refer to?
(a) Images made of pixels (b) Images created using paths and points
(c) Photographic images (d) 3D models

Answers

1. (b)	2. (b)	3. ( )	4. (b)	5. (a)	6. (d)	7. (c)	8. (c)
9. (a)	10. (c)	11. (c)	12. (a)	13. (c)	14. (a)	15. (a)	16. (b)
17. (c)	18. (a)	19. (c)	20. (d)	21. (b)	22. (c)	23. (a)	24. (c)
25. (c)	26. (d)	27. (a)	28. (c)	29. (b)	30. (c)	31. (b)	32. (c)
33. (b)	34. (c)	35. (b)	36. (c)	37. (c)	38. (c)	39. (d)	40. (c)
41. (c)	42. (a)	43. (a)	44. (a)	45. (a)	46. (b)	47. (d)	48. (c)
49. (d)	50. (d)	51. (c)	52. (b)	53. (b)	54. (b)		

1. **What does an operating system ensure for different programs and users running on a computer?**
   (a) They are stored efficiently. (b) They are connected to the internet.
   (c) They do not interfere with each other. (d) They run at the same time.
2. **What is the term used for a collection of software that manages all the hardware and software on a computer?**
   (a) Operating System (b) Application software
   (c) System software (d) User interface
3. **What does the OS ensure for each application?**
   (a) That it has access to the internet. (b) That it runs smoothly and efficiently.
   (c) That it can play music. (d) That it can create documents.
4. **What is an example of how a user interacts with a GUI?**
   (a) Typing commands in a terminal window.
   (b) Clicking on icons to open application.
   (c) Using a keyboard to input text. (d) All of the above.
5. **What is the purpose of regularly updating your operating system?**
   (a) To increase the speed of your computer
   (b) To make it easier to use the CLI
   (c) To improve security and performance (d) To download new application
6. **What is the main benefit of running Disk Cleanup when your computer is running slower than usual?**
   (a) It can help remove viruses and malware.
   (b) It can help reclaim disk space and improve performance.
   (c) It can help create backups of important file.
   (d) It can help manage hardware resource.
7. **What is the role of the "Remote Control" in the analogy of the TV remote control?**
   (a) It receives signals from the TV.
   (b) It sends correct signals to the TV to perform actions.
   (c) It stores the TV's data. (d) It controls the TV's power.
8. **What makes LibreOffice Writer a good alternative for users who prefer open-source software?**
   (a) Its compatibility with all operating systems.
   (b) Its advanced features for multimedia editing.
   (c) Its robust set of features is similar to Microsoft Word.
   (d) Its integration with other popular productivity suites.
9. **What is the purpose of "Ideas" in Excel and "Explore" in Google Sheets?**
   (a) To help users create video

(b) To help users find and apply relevant template
(c) To help users analyze data and suggest formula
(d) To help users format document

10. Which of the following software is a web-based graphic design tool accessible on any operating system with internet access?
(a) Adobe Photoshop (b) Canva (c) CorelDRAW (d) GIMP

Answers

1. (c)	**2.** (a)	**3.** (b)	**4.** (b)	**5.** (c)
6. (b)	**7.** (b)	**8.** (c)	**9.** (c)	**10.** (b)

Additional Short Questions

5.1 SOFTWARE

1. What are the two main types of Software?

Ans: Types of Software:
There are two types of software:
- System Software.
- Application software.

2. What is the purpose of system software?

Ans: System Software: System software is designed to manage the system resources and provide a platform for application software to run. It acts as a bridge between the hardware and the user applications.

3. List three examples of system software.

Ans: These are some examples:
- **Operating Systems Examples:** These include Microsoft Windows, macOS, and Linux.
- **Device Drivers:** These include printer drivers, graphics card drivers, and soundcard drivers.
- **Utility Programs Examples:** These are antivirus software, disk cleanup tools, and backup software.

4. What is the purpose of application software?

Ans: Application Software: An Application software is designed to help users perform specific tasks. These programs are built to fulfill user needs and are typically more varied than system software.

5. List *three* examples of application software.

Ans: Examples include:
- **Word Processors:** Such as Microsoft Word and Google Docs.
- **Web Browsers:** Such as Google Chrome, Mozilla Firefox, and Safari.

- **Games:** Such as Minecraft, Fortnite, and Among Us.
- **Media Players:** Such as VLC Media Player and Windows Media Player.

6. Differentiate between system software and application software.

Ans: Differentiating Between System Software and Application Software:

- **Purpose:** System software manages and operates computer hardware, making it possible for application software to run. Application software helps the user to perform specific tasks.

Examples: A System software includes operating systems and device drivers. Application software includes word processors, web browsers, and games.

- **Installation:** System software is usually pre-installed on a computer, while application software can be installed by the user as needed.

5.2 INTRODUCTION TO SYSTEM SOFTWARE

7. Define System Software.

Ans: System Software: A System software is essential for the operation of a computer system, acting as an intermediary between the hardware and the user applications. It ensures that the hardware components of a computer work together efficiently and provides a stable environment for application software to run.

8. What is the function of an operating system?

Ans: Operating System: An Operating System (OS) is a type of system software that manages all the hardware and software on a computer. It acts as an intermediary between the computer hardware and the user applications. The operating system ensures that different programs and users running on a computer do not interfere with each other. It also provides a stable and consistent way, for applications to interact with the hardware without having to know all the details of the hardware.

9. Write some commonly used operating systems for personal computers.

Ans: Some most commonly used operating systems are:

- **Windows:** A popular OS for personal computers developed by Microsoft. It has a start menu, taskbar, and windows for applications.
- **macOS:** An OS for Apple's Mac computers. It has a dock at the bottom of the screen and unique features like Mission Control.
- **Linux:** An open-source OS that is used for everything from servers to desktop computers. It can look different depending on the distribution you use.
- **Android:** An OS for smartphones and tablets, developed by Google. It is used on many different devices from various manufacturers.
- **IOS:** An OS for iPhones and iPads, developed by Apple. It is known for its smooth performance.

10. *Define Linux operating system.*

Ans: Linux: An open-source OS that is used for everything from servers to desktop computers. It can look different depending on the distribution (version) you use.

11. What is the primary function of an operating system?

Ans: Managing Hardware Resources: One of the primary functions of an operating

system is to manage the hardware resources of a computer system. This includes the CPU, memory, disk drives, and peripheral devices such as printers and keyboards. The OS ensures that each application gets the necessary resources to function correctly without interfering with other applications.

Examples: When you open a web browser while listening to music on your computer, the operating system allocates CPU time and memory to both the web browser and the music player. It ensures that both applications run smoothly by managing the resources effectively.

12. What are the two main types of user interfaces?

Ans: There are two main types of user interfaces:

- Graphical User Interfaces (GUIs)
- Command-Line Interfaces (CLIs).

13. What is a GUI?

Ans. Graphical User Interface (GUI): A GUI allows users to interact with the computer using visual elements such as windows, icons, and menus. This type of interface is user-friendly and intuitive, making it easy for users to navigate and perform tasks.

Examples: Microsoft Windows and macOS are operating systems that use GUIs. Users can click on icons to open applications, drag and drop files to move them, and use menus to access different functions.

14. What is a Command-Line Interface (CLI) and what is its main purpose?

Ans: Command-Line Interface (CLI): A CLI requires users to type text commands to perform specific tasks. This interface is more flexible and powerful, but it can be more difficult for beginners to use.

Examples: Linux and Disk Operating System (DOS) provide CLIs. Users can type commands to copy files, run programs, and configure system settings.

15. What are the key responsibilities of an operating system in relation to running applications?

Ans: Running Applications: An operating system is responsible for running applications on a computer. It loads applications into memory, allocates the necessary resources, and manages their execution. The OS also ensures that applications do not interfere with each other and that they run efficiently.

Examples: When you open a word processor like Microsoft Word, the operating system loads the application into the computer's memory and allocates CPU time for it to run. If you open multiple applications, the OS manages the distribution of *resources* so that all applications can run simultaneously without performance issues.

16. What is the purpose of a "task manager" or "activity monitor" on a computer?

Ans: Explore the task manage Windows or activity monitor Mac on your computer. Identify the different running applications and observe how much CPU and

memory each application is using. Discuss the operating system's role in managing these resources and why it is crucial for the computer's performance.

5.2.2 UTILITY PROGRAMS

17. What is the purpose of utility programs?

Ans: Utility Programs: Utility programs are essential components of system software that enhance the functionality of a computer system. They perform various tasks to ensure smooth operation and efficient management of hardware, software, and data.

18. What are some common utility programs and their functionalities? All names.

Ans: Disk Cleanup Functionality:

- Antivirus Software
- Backup Software
- File Compression Tools
- Device Drivers

19. What is the function and real-life scenario for using Disk Cleanup?

Ans: Disk Cleanup: Functionality: A Disk Cleanup scans your hard drive for temporary files, cached files, and other unnecessary items that can be safely deleted.

Real-life Scenario: After using your computer for a while, you may notice it's running slower than usual. Running Disk Cleanup can help reclaim disk space, potentially improving performance.

20. What is the function and Real-life scenario for using Antivirus Software?

Ans: Antivirus Software:

Functionality: An Antivirus software scans files and incoming data for known viruses and malware signatures. It also provides real-time protection to prevent virus attacks.

Real-life Scenario: You receive an email attachment from an unknown sender. Before opening it, you run your antivirus software to scan for any potential threats, ensuring your computer remains safe.

21. What is the function and real-life scenario for using Backup Software?

Ans: Backup Software:

Functionality: Backup software schedules regular backups of files and folders to external drives, cloud storage or network locations. It allows for full system backups or selective file backups.

Real-life Scenario: You accidentally delete an important presentation file. Using backup software, you retrieve the latest backup version of the file, ensuring minimal disruption to your work.

22. How are file compression tools helpful in a real-life scenario?

Ans: Real-life Scenario: You need to send a large folder of high-resolution photos via email. Using a file compression tool, you create a ZIP archive to reduce the file size, making it easier and quicker to upload and send. These utility programs are essential for maintaining the efficiency, security, and reliability of your computer system. Understanding their functionalities can help you better manage and

optimize your computing experience.

23. What is the role of device drivers?

Ans: Device Drivers: All device drivers facilitate communication between hardware devices and the operating system, ensuring that devices function correctly. Imagine your computer as a superhero with many powers, but sometimes it needs help to talk to its gadgets, like a printer, keyboard, or mouse. This is where device drivers come in. A device driver is like a translator between the computer and its gadgets.

24. What is the real-life analogy used to explain the role of device drivers?

Ans: Real-Life Analogy: TV Remote Control

Think of a device driver like a TV remote control:

- **TV (Device):** It can change channels, adjust the volume, and more, but it needs instructions.
- **Remote Control (Driver):** it sends the correct signals to the TV to perform these instructions.
- **You (Computer User): You (Computer User):** You decide what you want to watch or adjust and use the remote control to tell the TV.

25. How do device drivers work?

Ans: How Device Drivers Work:

1. **Installation:** When you connect a new device to your computer, you often need to install a driver.
2. **Communication:** The driver acts as a translator, converting general instructions from the computer into specific instructions that the device can understand.
3. **Operation:** Once installed, the driver helps the computer and the device to work together smoothly.

5.3 APPLICATION SOFTWARE

26. What is an Application Software?

Ans: Application Software: An Application Software refers to programs designed to perform specific tasks for users, ranging from productivity and creativity to entertainment and education. These software applications utilize the capabilities of the underlying operating system and hardware to fulfill user needs effectively.

27. Write about some commonly used application software.

Ans: Commonly used application software:

- Word Processing Software
- Spreadsheet Software
- Graphic Design Software

28. What is Word Processing Software?

Ans: Word Processing Software: A Word processing software is a type of application software used for creating, editing, formatting, and printing documents. These software programs are essential tools for writing letters, reports, essays, and other text-based documents. Word processors offer a variety of features that enhance the

writing and editing process, making it easier for users to produce professional-quality documents.

29. What are the benefits of using word processing software?

Ans: A Word processing software is a type of application software used for creating, editing, formatting, and printing documents. These software programs are essential tools for writing letters, reports, essays, and other text-based documents. Word processors offer a variety of features that enhance the writing and editing process, making it easier for users to produce professional-quality documents.

30. Write four popular word processing software programs.

Ans: Examples of Word Processing Software:

- **Microsoft Word:** Available on Windows and macOS, Microsoft Word is one of the most widely used word processors. It offers a range of features including text formatting, spell check, grammar check, and the ability to insert images, tables, and charts.
- **Google Docs:** A web-based word processor available on any operating system with internet access. Google Docs allows for real-time collaboration, where multiple users can edit a document simultaneously. It also integrates with other Google services.
- **Apple Pages:** Available on macOS and iOS, Apple Pages provides a user-friendly interface with powerful tools for creating visually appealing documents. It includes templates, design tools, and easy integration with other Apple products.
- **LibreOffice Writer:** Available on Windows, macOS, and Linux, Libre Office Writer is a free and open-source word processor. It offers a robust set of features similar to Microsoft Word, making it a great alternative for users who prefer open-source software.

31. What is spreadsheet software?

Ans: Spreadsheet Software: A Spreadsheet software is a type of application software used for organizing, analyzing, and storing data in tabular form. A spreadsheet consists of a grid of cells arranged in rows and columns, where users can input data, perform calculations, and create charts. This software is essential for tasks such as budgeting, financial analysis, data management, and statistical analysis.

32. What are the key features of a spreadsheet software?

Ans: A Spreadsheet software is a type of application software used for organizing, analyzing, and storing data in tabular form. Spreadsheets consist of a grid of cells arranged in rows and columns, where users can input data, perform calculations, and create charts. This software is essential for tasks such as budgeting, financial analysis, data management, and statistical analysis.

33. What are some examples of spreadsheet software?

Ans: Examples of Spreadsheet Software:

- **Microsoft Excel:** Available on Windows and macOS, Microsoft Excel is one of

the most widely used spreadsheet programs. It offers powerful features including complex formulas, pivot tables, and a variety of chart options.

- **Google Sheets:** A web-based spreadsheet available on any operating system with internet access. Google Sheets allows for real-time collaboration, where multiple users can edit a spreadsheet simultaneously. It also integrates with other Google services.
- **Apple Numbers:** Available on macOS and iOS, Apple Numbers provides a user-friendly interface with strong visualization tools for creating visually appealing spreadsheets. It includes templates and easy integration with other Apple products.
- **LibreOffice Calc:** Available on Windows, macOS, and Linux, LibreOffice Calc is a free and open-source spreadsheet program. It offers a robust set of features similar to Microsoft Excel, making it a great alternative for users who prefer open-source software.

34. What is graphic design software?

Ans: Graphic Design Software: A Graphic Design Software is a type of application software used for creating, editing, and managing visual content. These programs provide tools for drawing, painting, photo editing, and creating illustrations, making them essential for designers, artists, and anyone involved in visual media. A Graphic design software is used in various industries, including advertising, web design, publishing, and multimedia production.

35. What are some examples of popular graphic design software?

Ans: Examples of Graphic Design Software:

- **Adobe Photoshop:** Available on Windows and macOS, Adobe Photoshop is one of the most popular graphic design programs. It offers powerful tools for photo editing, digital painting, and graphic design.
- **Adobe Illustrator:** Available on Windows and macOS. Adobe Illustrator is a vector graphics editor used to create logos, illustrations, and scalable graphics that maintain quality at any size.
- **Corel DRAW:** Available on Windows and macOS, Corel DRAW is a vector graphics editor known for its user-friendly interface and robust feature set, ideal for creating professional graphics and layouts.
- **GNU Image Manipulation Program (GIMP):**

Available on Windows, macOS, and Linux, GIMP is a free and open-source graphic design program. It offers many features similar to Adobe Photoshop, making it a great alternative for users who prefer open-source software.

- **Canva:** A web-based graphic design tool accessible on any operating system with internet access. Canva provides an easy-to-use interface with a wide range of templates and design elements, making it perfect for beginners and professionals alike.

1. **How does system software differ from application software in terms of installation?**

Ans: Differentiate Between System Software and Application Software:

Purpose: System software manages and operates computer hardware, making it possible for application software to run. Application software helps the user to perform specific tasks.

Examples: System software includes operating systems and device drivers. Application software includes word processors, web browsers, and games.

Installation: System software is usually pre-installed on a computer, while application software can be installed by the user as needed.

2. **How does an operating system ensure that each application gets the necessary resources to function correctly?**

Ans: An operating system ensures that each application gets the necessary resources through efficient resource management. It does this by handling process scheduling, which distributes CPU time among applications based on scheduling algorithms to ensure smooth execution.

3. **How does an operating system ensure multiple applications can run simultaneously without performance issues?**

Ans: An operating system manages the distribution of resources (Such as CPU time and memory) to ensure all applications receive what they need to run smoothly without hindering each other.

4. **Explain why it's important to regularly update your operating system and perform routine maintenance tasks.**

Ans: Regularly updating your operating system with the latest version and performing maintenance tasks such as disk cleanup and virus scans helps keep it running smoothly, securely, and efficiently

5. **What does file compression tool basically do?**

Ans: File compression tools reduce file size to conserve storage space and make file transfer faster.

6. **What does a device driver behave like?**

Ans: TV Remote Control:

Think of a device driver like a TV remote control:

- **TV (Device):** It can change channels, adjust the volume, and more, but it needs instructions.
- **Remote Control (Driver):** It sends the correct signals to the TV to perform these actions.
- **You (Computer User):** You decide what you want to watch or adjust and use the remote control to tell the TV.

7. How does an application software utilize the capabilities of the operating system and hardware?

Ans: An Application software refers to programs designed to perform specific tasks for users, ranging from productivity and creativity to entertainment and education. These software applications utilize the capabilities of the underlying operating system and hardware to fulfill user needs effectively.

8. Write some AI based tools in word processor and Spreadsheets.

Ans: AI-based tools like Grammarly and Microsoft Editor are revolutionizing word processing by providing advanced grammar, style, and tone suggestions. These tools help users write more clearly and effectively by offering real-time feedback and corrections.

AI-based tools in spreadsheet software, such as Microsoft's Ideas in Excel and Google Sheets' Explore feature, help users analyze data by providing insights, suggesting formulas, and creating charts automatically.

9. What is Adobe Photoshop known for?

Ans: Adobe Photoshop: Available on Windows and macOS. Adobe Photoshop is one of the most popular graphic design programs. It offers powerful tools for photo editing, digital painting, and graphic design.

10. What does Canva provide for users?

Ans: Canva: A web-based graphic design tool accessible on any operating system with internet access. Canva provides an easy-to-use interface with a wide range of templates and design elements, making it perfect for beginners and professionals alike.

Exercise Questions

A. Miltiple Choice Questions.

1. What is the primary function of an operating system?

(a) To create documents
(b) To manage hardware resources and provide a user interface
(c) To perform calculations (d) To design graphics

2. Which software is used to enhance system performance and security?

(a) Operating system (b) Utility software
(c) Application software (d) Device drivers

3. What role do device drivers play in a computer system?

(a) Manage file
(b) Facilitate communication between hardware devices and the operating system
(c) Create presentation (d) Enhance graphics performance

4. Which of the following is an example of application software?

(a) Microsoft Word (b) BIOS (c) Disk Cleanup (d) Device Manager

5. **What is the main purpose of a spreadsheet software?**
   (a) To edit text document (b) To organize and analyze data
   (c) To create visual content (d) To enhance system security
6. **How does utility software differ from application software?**
   (a) Utility software manages hardware, while application software performs specific tasks for users.
   (b) Utility software creates documents, while application software manages hardware.
   (c) Utility software performs specific tasks for users, while application software manages hardware.
   (d) Utility software is free, while application software is paid.
7. ***Which* type of software would you use to design a logo?**
   (a) Operating system (b) Spreadsheet software
   (c) Graphic design software (d) Utility software
8. **What is the function of system software?**
   (a) To facilitate communication between hardware and software
   (b) To perform specific tasks for the user
   (c) To create visual content (d) To organize and analyze data
9. **Why are operating system updates important?**
   (a) They increase screen brightness. (b) They add more fonts.
   (c) They enhance security and fix bugs. (d) They improve battery life.
10. **What is a common task you can perform using word processing software?**
   (a) Create and edit text documents (b) Manage hardware resources
   (c) Enhance system performance (d) Organize and analyze data

Answers

1. (b)	2. (b)	3. (b)	4. (a)	5. (b)
6. (a)	7. (c)	8. (a)	9. (c)	10. (a)

B. Short Answer Questions.

1. **Define system software and provide two examples.**

Ans: System Software: A system software is designed to manage the system resources and provide a platform for application software to run. It acts as a bridge between the hardware and the user applications. Examples:

Operating Systems Examples: These Include Microsoft Windows, macOS, and Linux.

Device Drivers: *These include* printer drivers, graphics card drivers, and soundcard drivers.

2. **Explain the primary functions of an operating system.**

Ans: Managing Hardware Resources: One of the primary functions of an operating

system is to manage the hardware resources of a computer system. This includes the CPU, memory, disk drives, and peripheral devices such as printers and keyboards. The OS ensures that each application gets the necessary resources to function correctly without interfering with other applications.

Example: When you open a web browser while listening to music on your computer, the operating system allocates CPU time and memory to both the web browser and the music player. It ensures that both applications run smoothly by managing the resources effectively.

3. **What is utility software and why is it important?**

Ans: Utility programs are essential components of system software that enhance the functionality of a computer system. They perform various tasks to ensure smooth operation and efficient management of hardware, software, and data.

4. **Describe the role of device drivers in a computer system.**

Ans: Device Drivers: All device drivers facilitate communication between hardware devices and the operating system, ensuring that devices function correctly. think of imagine your computer as a superhero with many powers, but sometimes it needs help to talk to its gadgets, like a printer, keyboard, or mouse. This is where device drivers come in. A device driver is like a translator between the computer and its gadgets

5. **Differentiate between system software and application software with Examples.**

Ans: System Software: A System software is designed to manage the system resources and provide a platform for application software to run. It acts as a bridge between the hardware and the user applications. Examples:

Operating Systems: Examples include Microsoft Windows, macOS, and Linux.

Device Drivers: These include printer drivers, graphics card drivers, and sound card drivers.

Utility Programs: Examples are antivirus software, disk cleanup tools, and backup software.

Application Software: Application software is designed to help users perform specific tasks. These programs are built to fulfill user needs and are typically more varied than system software.

Examples include: Word Processors: Such as Microsoft Word and Google Docs.

Web Browsers: Such as Google Chrome, Mozilla Firefox, and Safari.

Games: Such as Minecraft, Fortnite, and Among Us.

Media Players: Such as VLC Media Player and Windows Media Player.

6. **What are the main functions of spreadsheet software?**

Ans: Spreadsheet Software: A spreadsheet software is a type of application software used for organizing, analyzing, and storing data in tabular form. All spreadsheets consist of a grid of cells arranged in rows and columns, where users can input data, perform calculations, and create charts. This software *is essential for tasks* such as budgeting, financial analysis, data management, and statistical analysis.

7. **How can graphic design software be used in the field of education?**

Ans: A Graphic design software can be a powerful tool in the field of education, offering numerous benefits for both educators and students:

1. **Creating Engaging Materials:** Teachers can design visually appealing presentations, handouts, and learning materials that capture students' attention and make complex subjects more understandable.
2. **Enhancing Creativity:** All the students can use graphic design software to create projects, presentations, and artwork, fostering their creativity and allowing them to express their ideas in unique ways.
3. **Interactive Learning:** All the educator can develop interactive and multimedia content, such as infographics, animations, and videos, which can make learning more engaging and interactive.
4. **Skill Development:** All the Students can learn valuable skills related to design, such as typography, layout, color theory, and digital illustration, which can be beneficial for future careers in various fields.

8. **What is the significance of data backups and how can they be performed?**

Ans: Backup Software:

Functionality: Backup software schedules regular backups of files and folders to external drives, cloud storage, or network locations. It allows for full system backups or selective file backups.

Real-life Scenario: You accidentally delete an important presentation file. Using backup software, you retrieve the latest backup version of the file, ensuring minimal disruption to your work.

C. Long Question

1. **Discuss the importance of system software in a computing system.**

Ans. For Answer See Q.2

2. **Describe the roles of operating systems, utility software, and device drivers, providing examples of each.**

Ans. For Answer See Q.2

3. **Explain the differences between system software and application software.**

Ans. For Answer See Q.1

4. **Describe the process of using utility software to optimize system performance and maintain security. Provide detailed steps and examples of common utility tools.**

Ans. For Answer See Q.3

5. **Explain how to install, update, and troubleshoot device drivers for hardware components.**

Ans. For Answer See Q.4

6. **Discuss the main functions of commonly used application software, such as word processing, spreadsheet, presentation, and graphic design applications.**

Ans. For Answer See Q.5