Chapter #1: Fundamentals of Computer

Q1. Discuss the use of computer in any two Fields of life.

Use of computer in field of life

Education

Computers have revolutionized the teaching profession in multiple ways. Teachers use computers to record grades, calculate averages, manage attendance and access data on student performance in online programs and assessments. Computers have also made it easier for teachers to vary their instructional delivery.

Business

Computers help in research, production, distribution, marketing, banking, team management, business automation, data storage, employee management, and very helpful to increase productivity at a lower cost, less time with high quality.

Banking

Banks and other financial institution are heavy users of computers in maintaining customer's accounts, ledger, updating, electronic fund transfer and processing of huge amount of cheques, credit cards, and the major transactions that takes place daily

Q2. Differentiate Compiler and Assembler.

Compiler	Assembler
Compiler translates high level programming language code to machine level code.	Assembler converts the assembly level language to machine level code.
Source code in high level programming language.	Assembly level code as input.
Compiler checks and converts the complete code at one time.	Assembler generally does not convert complete code at one time.
lexical analyzer, Syntax analyzer, Semantic analyzer, Code optimizer, Code generator, and Error handler	Assembler does works in two passes.
Mnemonic version of machine code.	Binary version of machine code.
C, C++ , Java compilers.	GAS, GNU assemblers.

Q3. Differentiate System and Application software.

System Software.	Application Software.
System Software is the type of software which is the interface between application software and system.	Application Software is the type of software which runs as per user request.

In general System software are developed in low level language which is more compatible with the system hardware in order to interact with.	While in case of Application software high level language is used for their development as they are developed as some specific purpose software.
System software is used for operating computer hardware.	On other hand Application software is used by user to perform specific task.
System software are installed on the computer when operating system is installed.	On other hand Application software are installed according to user's requirements.
As mentioned in above points system software are specific to system hardware so less or no user interaction available in case of system software.	On other hand in application software user can interacts with it as user interface is available in this case.
System software can run independently. It provides platform for running application software.	On other hand in application software can't run independently. They can't run without the presence of system software..
Some examples of system software's are compiler, assembler, debugger, driver, etc.	On other hand some examples of application software's are word processor, web browser, media player, etc.

Q4. Describe artificial intelligence with examples.

Artificial Intelligence

The term A.I. may also be referred to any machine that displays qualities associated with a human brain such as learning, reasoning and problem solving. A.I. is also used for Machine Learning. It learns from our daily routines and suggests us different options.

Example

Like google maps suggest the best ways for our daily commute. A.I. is vastly used in scientific experiment, healthcare and space technologies.

Q5. Discuss Impact and Non-Impact Printers with examples.

Impact Printers:

It is a type of printer that works by direct contact of an ink ribbon with paper. These printers are typically loud but remain in use today because of their unique ability to function with multipart forms. An impact printer has mechanisms resembling those of a typewriter.

Example of Impact Printers

Dot-matrix printers, Daisy-wheel printers, and line printers.

Non-Impact Printers:

It is a type of printer that does not hit or impact a ribbon to print. They used laser, xerographic, electrostatic, chemical and inkjet technologies. Non-impact

printers are generally much quieter. They are less likely to need maintenance or repairs than earlier impact printers.

Example of Non-Impact Printers

Inkjet printers and Laser printers.

Q6. Write the use of these storage devices: Hard Disk, USB Flash Disk, SD Card.

Hard Disk

A hard disk drive (HDD) is a non-volatile computer storage device containing magnetic disks or platters rotating at high speeds. It is a secondary storage device used to store data.

USB Flash Disk

USB flash drives are often used for storage, data back-up and transferring of computer files. Compared with floppy disks or CDs, they are smaller, faster, have significantly more capacity, and are more durable due to a lack of moving parts.

SD Card

An SD card is a storage device that is used to store data You can add an SD card to a small device, like a mobile phone, to extend the storage space available for ringtones, texts, apps, music and other data.

Q7. Which monitor will you prefer in your school; CRT or FPD? Why? FPD(flat panel display) monitor will he more preferable than CRT monitor, because ,

- It use less electricity
- It dose not emits ray which emitted by CRT monitor which effect the eyes of uses
- It use small area whereas CRT need bigger area
- FPD have a picture quality is better than CRT monitor

Q8. List any five components present on motherboard.

Components on motherboard

1. Microprocessor (CPU)
2. Ports
3. Buses
4. RAM
5. ROM

Q9. Outline the various generations of computers

(a) First Generation of Computers (1940 to1956)

Based on vacuum tubes, first generation computers were very large in size. This generation computers used machine language (i.e. 1's and 0's).Magnetic drums were used as primary internal storage medium and punched cards for input. In this generation mainly batch processing operating system was used.

Examples

Electronic Numerical Integrator and Calculator (ENIAC), Universal Automatic Computer (UNIVAC)

(b) Second Generation of Computers (1956 to 1963)

Because of transistors computers became smaller, faster, cheaper and more efficient. Assembly language and a high-level language FORTRAN were introduced. Magnetic core was used as primary internal storage medium. Punched Cards were used for input. Batch processing and Multiprogramming Operating systems were used. These computers were mainly used for commercial productions, scientific and engineering analysis and design.

Examples

IBM 7094 and IBM 1401

(c) Third Generation of Computers (1964 to 1971)

Use of ICs further decreased size of computers and increased the speed and efficiency. Less expensive computers were introduced. High level programming languages such as Pascal and COBOL were used. Keyboard as input and monitor as output also eased the use of computer.

Example

IBM 370 are the examples of this generation's computers.

(d) Fourth Generation of Computers (1971 to Present)

The invention of microprocessors was revolutionary which caused the development of faster, less expensive, smaller and more reliable computers. They used semi-conductor memories RAM and ROM and magnetic storage became popular. More high-level languages were introduced like C, C++, Java, etc.

Examples

Apple Macintosh, IBM PC.

(e) Fifth Generation of Computers (Present and Beyond)

Fifth Generation computing devices are still being developed. In this generation computers will be capable of self- learning, reasoning and generalization.

Q10. Define Analog Computer, Digital Computer and Hybrid Computer.

(a) Analog Computers

Analog Computers are used to process analog data. Analog data are in the form of continuously varying physical quantities like pressure, temperature, voltage, speed and weight. Examples of Analog computer are speedometer of a car, voltmeter etc.

(b) Digital Computers

Digital Computers are most commonly used type of computers. They are used to process information with quantities using the binary number system (0's and 1's). Digital Computers are used in home, educational institutes, offices, business, scientific fields, etc.

(c) Hybrid Computers

Hybrid Computers are the combination of Analog and Digital Computer system. These computers combine analog and digital features of computers in a single machine. A Hybrid Computer uses analog to digital and digital to analog conversion. It may input or output either digital or analog data.

Q11. What are Super Computers, Mainframe, Minicomputer and Microcomputers.

(a) Super Computers

Super Computers are the most powerful, fastest and largest computers. They are extremely expensive. These computers are widely used in scientific applications such as aerodynamics, design simulations, processing of geological data, weather forecasting and nuclear research.

(b) Mainframe

Mainframe Computers are powerful multi-user and multiprocessors computers. They can process huge amount of calculations at very high speed. Mainframes are also very expensive and require a lot of technical expertise to be installed and operated. They are used in banks and many large business organizations where several users work simultaneously.

(c) Minicomputer

These are smaller than mainframe computers, but they are more powerful than Microcomputers. Minicomputers usually use multi-user operating system. Multiple users can use the Minicomputers through terminals. Minicomputers may be used as network servers and Internet servers. DEC VAX and IBM AS/400 are good examples of minicomputers.

(d) Microcomputers

Microcomputers are also called Personal Computers (PCs). The use of microprocessor has made computers cheaper yet faster and more reliable. These are the smallest computers designed to be used by individuals. PCs can be used for variety of tasks like documentation, calculations, illustration and

entertainment. The power of network and internet has also made it more useful. Now computers are also used for communication and socialization.

Q12. Write shot note on mother board.

Mother board

The motherboard is the main board which connects different parts of computer. It includes the following general components: Microprocessor (CPU), Slots, Ports, Buses, RAM, ROM and other electronic components for example resistors, capacitors, diodes, transistors, jumpers etc.

Just like nervous system it allows communication between all parts of the computer. We can find CPU, memory slots, expansion slots and a number of chipsets on motherboard. Motherboards also have connectors called ports. These ports are used to connect input, output and other peripheral devices.

Q13. what is an Arithmetic Logic Unit ALU and Control Unit CU.

(a) Arithmetic Logic Unit (ALU)

ALU performs all the actual calculations like arithmetic operations and logical comparisons. Arithmetic operations include addition, subtraction, multiplication and division while logical comparisons include comparing, selecting and matching of data.

(b) Control Unit (CU)

Control Unit is responsible for controlling the transfer of data and instructions among other units of a computer. This unit controls the operations of all parts of

the computer but does not carry out any actual data processing operations. CU functions just like a traffic policeman. It manages and coordinates all the units of the computer.

Q14. Define Buses and it types

Buses

In computer, Buses are the electric paths on which data is sent and received by different components. They are just like roads. As roads connect different places, buses connect all the parts of the computer to each other. They also connect all internal components on the motherboard. There are three types of buses

1. Control bus
2. Data bus
3. Address bus.

Control Bus *carries command between different components to control all activities in a computer.*

Data Bus *carries data between the processor, memory unit and other components.*

Address Bus *carries* the address of the data (but not the data).The address bus is used to specify memory location to be used by micro process for specific operation.

Q15. Differentiate between Soft Copy and Hard Copy

Soft Copy	Hard Copy
It is screen display or voice output.	It is output on paper.
It is volatile output and lost when other output is shown or computer is turned off	It is nonvolatile output that is relatively stable and permanent form
Monitor, speaker are examples of soft copy	Printer, plotter are examples of hard copy

Q16. What is plotter?

Plotters

Like printer it gives images on paper but typically used to print large format images such as maps, construction drawing, advertising hoardings etc.

Q17. Define monitor and its types

Monitors

It is TV like device that displays data by small bright dots called pixels.

Monitors are of two types.

Cathode Ray Tube (CRT)

CRT monitor contains millions of tiny red, green, and blue phosphor dots that glow when struck by an electron beam that travels across the screen to create a visible image. The illustration below shows how this works inside a CRT.

Flat Panel Display (FDP)

A flat-panel display (FPD) is an electronic display device used to enable people to see content in a range of entertainment, consumer electronics, personal computer, and mobile devices, and many types of medical, transportation and industrial equipment. They are far lighter and thinner than traditional cathode ray tube (CRT) television sets and are usually less than 10 centimeters (3.9 in) thick.

Q18. Differentiate between ROM and RAM

ROM	RAM
ROM is non-volatile, not requiring power to store data.	RAM is volatile, requiring power to store data.
ROM is often used to store the BIOS program on a computer motherboard.	RAM is used in computers to temporarily store files in use on the computer.
ROM chips often have a storage capacity of 4 to 8 MB.	RAM chips often range in storage capacity from 1 to 256 GB.
ROM can vary in size	RAM is available in two primary sizes

Q19. Prepare a table of generations.

Generation	Period	Technology	Example of Machines

First	1940 - 1956	Vacuum tubes	ENIAC, UNIAC
Second	1956 – 1963	Transistor	IBM 7094
Third	1964 – 1971	Integrated circuit	IBM 360
Forth	1971 - present	Microprocessor	IBM PC
Fifth	Present - beyond	Artificial Inelegancy	Laptop

Choose the right answer

1. The device that converts hard copy into soft copy is:

a) printer b) plotter

c) scanner d) barcode reader

2. The volatile memory

a) is permanent b) loses contents as the power is off

c) possesses large storage d) manages hardware resources

3. Media players are:

a) business software b) education software

c) entertainment software d) productivity software

4. The programs that are generally installed to manage and maintain overall computer resources is:

a) operating system b) utility program

c) language translator d) device driver

5. Modern languages use

a) compiler b) interpreter

c) convertor d) assembler

6. A collection of wires connecting the CPU with main memory that is used to identify particular locations is:

a) control bus b) data bus

c) address bus d) memory bus

7. The inexpensive and most commonly used computers are:

a) super computer b) mainframe computer

c) minicomputer d) microcomputer

8. Computer cannot start without:

a) operating system b) utility program

c) device drivers d) business software

9. Graphical User Interface (GUI) was developed in:

a) second generation b) fourth generation

c) mechanical era d) electro-mechanical era

10. A person who uses different programming languages to develop programs is:

a) database administrator b) web designer

c) software engineer d) graphic designer

Chapter # 2: Fundamentals of Operating System

Q1 Define Operating System. Give three examples of operating systems

Operating System

An Operating System is a software which performs all the basic tasks like booting the computer, file management, memory management, process management, and controlling peripheral devices such as hard disk, printer, etc. It manages computer resources efficiently.

Examples

Windows

Linux

Android

Mac

iOS

Q2 List the functions of an OS? Write briefly about any two

Function Of Operating System

Operating system manages every activity of a computer. It is the master control program that provides an interface for a user to communicate with computer. System software and application software run on operating system. Operating System performs the following functions.

1. **Booting**

   Booting is a process of starting the computer operating system. It checks the computer resources and makes it ready to perform different tasks.

2. **Resource Management**

   Operating system manages all the hardware and software resources. This includes allocation and de-allocation of processor, memory, access to shared cache memory and access to network resources.

Q3. Differentiate between CLI and GUI. Write any two benefits of each.

Command Line Interface (CLI)	Graphical User Interface (GUI)
It is a screen or text-based representation in which the user types the commands on place called prompt to operate the computer.	A GUI provides a user friendly environment where user can interact with computers through graphical objects
Command contains string of characters.	It contains menus, icons, buttons and other graphical objects.
CLI is difficult to use because the user has to remember the commands and their syntaxes.	It is easy to use as users are supposed to just click on a picture to run commands without memorizing them.
It is fast in use because text mode takes less resources	GUI is as graphical mode takes more memory and resources.
Personal computers including MS-DOS and Apple DOS are the example of CUI	Windows and IOS are the example of GUI.

Q4. Which resources are managed by Resource Management function of OS?

Ans. Resource Management Operating system manages all the hardware and software resources. This includes allocation and de-allocation of processor, memory, access to shared cache memory and access to network resources.

Q5. What is the difference between single user and multi user OS?

Single User Operating System	Multi-User Operating System
In a Single User Operating System, a single user can access the computer system at a time.	A Multi-User Operating System allows multiple users to access the computer at same time.
It's the most common system used for home computers	It's the most common system used for business computers
DOS for PCs and Windows 98 for PCs are example of single user operating system.	Linux and UNIX are the most common examples of the multi-user operating system.

Q6. What is the purpose of office automation software? List the programs available in MS Office and write why each program is used?

Purpose of office automation

Office Automation software is the most common software package that we install on our computers. Office Automation software is a group of computer programs that help users in their daily work. Generally, you will find MS Office in school lab, offices and other places. MS Office contains

- MS Word use for word processor
- MS Excel use for making Spreadsheet
- MS PowerPoint is use for making multimedia presentation
- MS Access use for doing database management
- MS Outlook is and email application

Q7. What is the major difference between Soft Real Time and Hard Real Time systems?

Soft Real Time and Hard Real Time

A Real Time Processing operating system is a time bound operating system which has fixed time limit.
whereas A Hard Real Time System guarantees that critical tasks complete on time. Missile systems and Air Traffic Control System are best examples of Hard Real Time System

Q8. Why it is important to install an antivirus?

Installing Antivirus

To keep our computer secure and free from viruses, we need to install an antivirus software. A number of free antivirus software are available online. AVG, Avast, Avira and Kaspersky are some of the free antivirus software.

Q9. what are the major steps involve to install windows

Major Steps for Installing Windows

- Insert the Windows Installation DVD/Flash Drive
- Restart your Computer
- Wait for the First startup screen
- Press or hold Del or F2 to enter the BIOS screen
- Locate the Boot order/ Boot sequence
- Select Boot order/ Boot sequence as per your installation source
  USB Flash/USB Hard Disk
  USB CD/DVD ROM
  Internal CD/DVD ROM
- Select any option:
  Upgrade
  Customize Installation (Advance)
- Select any drive for installing your operating system Follow the on screen instructions

Q10. Give steps To install MS- Office package

We need to take following steps.

- Run the MS- Office setup from USB, DVD or Hard Disk backup.
- Check the box marked 'I accept the terms of this agreement' and click on 'Continue'.
- Enter Product Key
- Click on Install Now or Customize procedure.

- Select the package which you want to install. Click on 'Install Now'. Then installation begins.
- MS Office installer will notify automatically after finishing the installation.

Choose the right answer

1. The software which performs all basic tasks is:

a) antivirus b) start menu

c) operating system d) office automation

2. A program that enables user to interact with computer is called:

a) my document b) start menu

c) desktop d) interface

3. The process of checking computer, starting operating system and making it ready to work is referred to as:

a) resource management b) booting

c) error checking d) file management

4. The number of user(s) that can access the resources simultaneously on a Multiuser OS is /are:

a) one b) two

c) many d) only administrators

5. Which management controls the dynamic allocation and de-allocation of processor, memory, etc?

a) Resource b) File

c) I/O d) User

6. In which operating system jobs are executed in groups?

a) Batch Processing b) Time Sharing

c) Single User d) Real Time

7. The system that guarantees that critical tasks should be completed without shortest delay is:

a) Batch Processing b) Hard Real Time

c) Soft Real Time d) Time Sharing

8. DOS is an example of:

a) Real Time Processing OS b) Multi Processing OS

c) Single User OS d) Multi User OS

9. The group of programs that helps office workers to do a number of routine tasks easily and efficiently is called:

a) operating system b) e-mail

c) anti-virus d) office automation

10. The operating system that allows frequent switching from one task to another is:

a) Batch Processing b) Real Time Processing

c) Single User d) Time Sharing

Chap # 3: Office Automation

Q1. What is a word processor? Write functions of a word processor.

Word processor

Word processing software is used to manipulate a text document, such as a resume or a report. You typically enter text by typing, and the software provides tools for copying, deleting and various types of formatting.

Functions of word processing

Some of the functions of word processing software include:

a. Creating, editing, saving and printing documents.
b. Copying, pasting, moving and deleting text within a document.
c. Formatting text, such as font type, bolding, underlining or italicizing.
d. Creating and editing tables.
e. Inserting elements from other software, such as illustrations or photographs.
f. Correcting spelling and grammar

Q2. Discuss the Margins and Paper Size options in the Page Setup group.

Margins (HOTKEY: ALT+P+M)

A margin is the area or space between the main content of a page and the page edges. This button is used to change the margins of the entire document or selected section.

Paper Size (HOTKEY: ALT+P+S+Z)

The size button is used to choose the size of the paper for current section or entire document.

Q3. Name and describe two options in Orientation.

Orientation (HOTKEY: ALT+P+O)

Page orientation or print orientation is the placement of contents on a page.

Portrait mode

Portrait mode is the orientation of the page that prints the image vertically across the page

Landscape mode

Landscape mode is the orientation of the page that prints the image horizontally across the page

Q4. How can we apply Margins in a document?

To set margins in Word, first click the "Layout" tab in the Ribbon. Then click the "Margins" drop-down button in the "Page Setup" button group.

In this drop-down is a "Last Custom Setting" option, six preset margin choices, and a "Custom Margins" command click on it and set your desire custom margin then click ok or, to apply preset margins in Word, click one of the preset margin choices shown in the drop-down menu.

Q5. Describe the different types of breaks in MS Word.

Page Breaks in MS Word

There are 4 types of section breaks you can insert in a Microsoft Word document.

Next page

Insert a section break and start the new section of the next page.

Continuous

A type of break in which a section is break and to start the new section on the same page.

Even page

It inserts a section break and start the new section of the next even number page.

Odd page

In this type a section breaks and start the new section on the next odd number page.

Q6. Differentiate "Bring Forward" and "Send Backward" options in the Arrange group with example.

Bring Forward	Send Backward

Brings a selected object in front of all other objects.	Sends a selected object behind all other objects
HOTKEY use is ALT+P+A+F	HOTKEY use is ALT+P+A+E

Q7. Explain the "Columns" option in the Page Setup group.

Columns

This button is used to split the text into two or more vertical columns. Short cut key use for it be ALT+P+J

Q8. List and define Position and Wrap Text option in Arrange Group.

Position (HOTKEY: ALT+P+P+O)

Position is used to place an object (picture or shape) on the page wherever you want.

Wrap Text (HOTKEY: ALT+P+T+W)

Text wrapping is used to arrange the text around an object like an image.

Q9. In what way does a ToC help book reader?

Table of Contents (ToC)

A Table of Contents (ToC) is an organized listing of the sections, groups and headings of content in a document and identified by page numbers where they are placed. It provides an overview of the document and allows readers to go directly to specific section or content in the document. ToC usually appears after the Title Page in a document. MS Word 2010 provides an advanced feature for automatically creating a ToC. A user can create an Automatic or a Manual table of contents in a document.

Q10. Write steps that will multiply 37 by 15 using the formula bar in MS Excel.

To multiply numbers, which are 37 and 15, placed in columns A2 and B2, respectively. The objective is to add these two numbers using MS Excel formula.

To achieve this, follow these steps:

1. Select cell C2.
2. Type = (equal sign).
3. Select cell A2 in the worksheet by using the mouse or the keyboard. This action places the cell reference A2 in the formula of selected cell.
4. Type * .
5. Select cell B2 in the worksheet by using the mouse or the keyboard to put that cell's reference in the formula of selected cell.
6. Press Enter.
7. The answer (555) will be calculated by MS Excel and displayed in the selected cell (C2) where the addition formula was composed.

Q11. Why do we use Watermark in a document? Give some examples of Watermarks.

Watermark (HOTKEY: ALT+P+P+W)

A watermark is a faded background image that displays behind the text in a document. This button is used to insert logos, images or text behind the contents of a page.

Common watermarks by default are

Confidential

Do not copy

Q12. List uses of spreadsheets in business

1. Storing Data

One of the main uses of spreadsheets in business is storing data.

2. Manipulate and analyze data

Apart from storage, you can use spreadsheets to manipulate and analyze data. For example, it contains a feature that allows you to enter custom formulas.

3. Presentation/Visualization

Spreadsheets are used often for visualization purposes. They contain different tools and features that make it possible.

4. Inform the Decision Making Process

Decisions that a business makes determines whether it will be successful or not. Spreadsheets help managers and investors to make well-informed decisions

5. Business Accounts and Budgeting

Coming up with a budget is not an easy task without the use of spreadsheets. You can create a table and list the most important things followed by the least important. There are features that will show you the sectors that need the most attention. This information is very important, especially when purchasing items.

Spreadsheets also assist accountants in managing business accounts. So funds are released easily because some calculations are automated.

6. Invoices

Most spreadsheet platforms will allow you to integrate the invoice template. It speeds up the process of receiving or dispatching products.

7. Wages

Managing wages is now easy thanks to the spreadsheets. You can set up a formula that automatically calculates the number of hours an individual employee has worked.

13. What do you know about page layout tab?

Page layout tab

The Page Layout Tab allows user to control the look and feel of his or her document. User can set margins, apply themes, control page orientation and size, add sections and line breaks, display line numbers, and set paragraph indentation and lines. The Page Layout tab has have groups of related commands namely Themes, Page Setup, Page Background, Paragraph and Arrange.

Q14. what is Page setup group? Also discus if functions.

Page setup group

Page Setup settings help us set the page layout properties such as margins, orientation and size. The settings in this section are often applied throughout the document.

1. **Margins (HOTKEY: ALT+P+M)**

   A margin is the area or space between the main content of a page and the page edges. This button is used to change the margins of the entire document or selected section.

2. **Orientation (HOTKEY: ALT+P+O)**

   Page orientation or print orientation is the placement of contents on a page. This button sets the contents of the page or section in portrait (Vertical) or landscape (Horizontal) layouts.

3. **Size (HOTKEY: ALT+P+S+Z)**

   The size button is used to choose the size of the paper for current section or entire document.

4. **Columns (HOTKEY: ALT+P+J)**

   This button is used to split the text into two or more vertical columns.

5. **Breaks (HOTKEY: ALT+P+B)**

   Breaks button is used to insert page, section or column breaks in the document.

6. **Line Numbers (HOTKEY: ALT+P+L+N)**

   This button is used to add line numbers on the left side of each line of the document.

7. **Hyphenation (HOTKEY: ALT+P+H)**

   This button is used to specify how hyphenation in a document should be applied.

Q15. What do you know about page background group?

Page Background Group

These settings are used mostly for special documents such as certificates, invitations, brochures, essays, etc. It consists of 3 buttons namely, Watermark, Page Color and Page Borders.

1. **Watermark (HOTKEY: ALT+P+P+W)**
   A watermark is a faded background image that displays behind the text in a document. This button is used to insert logos, images or text behind the contents of a page.
2. **Page Color (HOTKEY: ALT+P+P+C)**
   This button is used when user wants to apply a color for the background of the page.
3. **Page Border (HOTKEY: ALT+P+P+B)**
   Page Border button is used to put a border around the page.

Q16. What do you know about Paragraph Group? Discus its function.

Paragraph Group

The Paragraph Group is where we can modify all the settings of the paragraphs that appear in our document. This allows us to set a few basic paragraph styles and also adjust the indents and spacing's.

1. **Indent Left (HOTKEY: ALT+P+I+L)**
   Indent Left is used to define amount of blank space (in centimeters) used to separate a paragraph from left margin.
2. **Indent Right (HOTKEY: ALT+P+I+R)**

Indent Right is used to define amount of blank space (in centimeters) used to separate a paragraph from right margin.

3. **Space Before (HOTKEY: ALT+P+S+B)**

   Space Before is used to indicate how much space (in points) is added before the selected paragraph.

4. **Space After (HOTKEY: ALT+P+S+A)**

   Space After is used to indicate how much space (in points) is added after the selected paragraph.

Q17. What do you know about Arrange group in MS-Word.

Arrange group

The buttons in Arrange Group help the users to quickly arrange graphical and other elements of the document in relation to the main textual content.

1. **Position (HOTKEY: ALT+P+P+O)**

   Position is used to place an object (picture or shape) on the page wherever you want.

2. **Wrap Text (HOTKEY: ALT+P+T+W)**

   Text wrapping is used to arrange the text around an object like an image.

3. **Bring Forward (HOTKEY: ALT+P+A+F)**

   Brings a selected object in front of all other objects.

4. **Send Backward (HOTKEY: ALT+P+A+E)**

   Sends a selected object behind all other objects.

5. **Selection Pane (HOTKEY: ALT+P+A+P)**

   Selection Pane is used to select, show, hide and change the order of objects in the document.

6. **Align (HOTKEY: ALT+P+A+A)**

Align is used to place objects like pictures, shapes, icons, etc. in alignment with margins, edge, or relative to another object in the document.

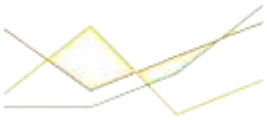
Q17. Write a short note on sorting

Sorting

Sorting is the process of rearranging or reordering data based on different criteria like size, quality, value and quantity. MS Excel has the ability to sort data according to the needs of the user.

Choosetherightanswer:

1. Which chart will be suitable to show the share of three partners in a business?

a) 

b) 

c) 

d) 

2. The software that is used for accounting purpose is:
a) MS Word b) MS Excel
c) MS Power point d) MS Access

3. The software that is used to format a document is:
a) MS Word b) MS Excel
c) MS Power point d) MS Access

4. The special character that initiates the formula mode in a cell is:
a) / b) =
c) - d) *

5. The function which is used to re-arrange data according to specific criteria is called:
a) Filtering b) Sorting
c) Organizing d) Grouping

6. If we want to change the overall design of a word document, we should use:
a) themes b) page layout
c) watermark d) margins

	A	B	C	D	E	F
1	Name	English	Sindh/Urdu	Maths	Science	Total
2	Ghulam Shabir	40	41	41	40	
3	Riaz Hussain	41	39	34	38	
4	Nabil Ahmed	41	35	32	40	
5	Anwar Ali	40	38	33	37	

7. The correct formula to calculate the total in the given table is:

a) = B2 + C2 + D2+ E2
b) = B2 + E2
c) = sum (B2 to E2)
d) =sum (B2 from E2)

8. The correct formula to calculate the percentage in the given table is:

	A	B	C	D	E	F
1	Name	English	Sindh/Urdu	Maths	Science	Per
2	Ghulam Shabir	40	41	41	40	
3	Riaz Hussain	41	39	34	38	
4	Nabil Ahmed	41	35	32	40	
5	Anwar Ali	40	38	33	37	

a) =B2 + C2 + D2+ E2 / 400 * 100

b) =B2 + C2 + D2+ E2 * 100

c) =(B2 + C2 + D2+ E2) / 400 * 100

d) =(B2 + C2 + D2+ E2) / 100 * 400

9. Charts are basically used to

a) design tables
b) organize data in tables
c) Sort data in different columns
d) show the quantities and their relationships graphically

10. To apply the table of contents automatically, the most important task is to properly define the

a) levels of heading
b) page numbering
c) page layout
d) themes

Chap 4: Data Communication and Computer Networks

Q1. List the properties of a good communication system. Explain any one.

Properties of a Good Communication System

The effectiveness of a data communications system depends on the fundamental characteristics which include delivery, accuracy and timeliness.

Characteristic

1. **Delivery**

   Making sure that the data is delivered is the first fundamental characteristic of any communication network. The system must be able to deliver data in correct order to the correct destination.

3. **Accuracy**

   The system must deliver the data accurately. Data that has been altered during transmission and left uncorrected is not useful.

4. **Timeliness**

   The data must be delivered in a timely manner. Late delivered data is useless.

Q2. Explain components of communication using single example.

Components of a Communication System

A Communication system has following five components

1. **Message**

   It is the information or data to be communicated. Common forms of information include text, numbers, pictures, audio and video.

2. **Sender**

   It is the device that generates and sends a message. It can be a computer, telephone handset, etc.

3. **Receiver**

   Any particular digital electronic device which has capability to recieve data in form of message. The location of receiving computer is generally different from the sending computer. Like sender, it can also be a computer, telephone handset, etc.

4. **Medium**

   It is the channel or path through which the message is carried from sender to the receiver. Some examples include twisted-pair cable, coaxial cable, radio waves, etc.

5. **Protocol**

   Protocols are the rules and procedures on which computers exchange data on network. Sender and receiver follow same protocols to communicate with each other. In other words, a protocol is an agreement between two parties or venders, using communication devices.

Q3. Write the function of following network devices.
Amplifiers, Routers, Switch, Hub

Amplifiers

Amplifiers are used to overcome attenuation and make signal stronger again

Router

A Router is a device that connects two or more networks. Routers are a combination of hardware and software. The main function of a router is to

determine the optimal data path and transfer the information through that path, also known as network traffic controller.

Switch

A switch or network switch is a networking device that connects computers and other devices like printers, scanners and cameras on a network. Data cables from all computers and other devices of network are plugged into the switch to enable communication between them.

Hub

Hub is commonly used to connect segments of a LAN (Local Area Network). A hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets. Hub acts as a common connection point for devices in a network.

Q4. List the causes of signal impairments. Explain them.

Causes of impairment

There are three causes of impairment i.e.

attenuation

distortion

noise

1. **Attenuation**

   Attenuation means loss of energy. A signal loses its energy due to the resistance of medium while it is transmitted. Its strength decreases with

increase in distance. Amplifiers are used to overcome attenuation and make signal stronger again. It is measured in decibels.

2. **Distortion**

   Distortion means change in the shape of the signal. A composite signal has several frequencies. When it travels through a medium different component of signal may reach at different time at destination because each component has different speed in that medium. This is called distortion. They have different phases at sender and receiver ends.

3. **Noise**

   Unwanted signal that mixes up with the original signal during the transmission of data is called noise. It can be induced noise, crosstalk noise, thermal noise and impulse noise which may damage the signal.

Q5. What is the difference between radio wave and microwave?

Microwave	Radio Waves
Microwave transmission is a line of sight transmission i.e. the sending and receiving antennas need to be properly aligned with each other.	Radio waves are also called electromagnetic waves. These are easy to generate and can penetrate through buildings.
Microwaves are electromagnetic waves with frequencies between	Radio waves are electromagnetic waves within the frequencies 30KHz – 300GHz, and Microwaves

300MHz (0.3GHz) and 300GHz in the electromagnetic spectrum.	are at the higher frequency end radio waves are at the lower frequency end.
These are mostly used for mobile phone communications tower and television broadcast	FM, AM radios, television and cordless phones use radio waves

Q6. Why OSI model is broken up in layers?

OSI model

The Open Systems Interconnection model is a conceptual model developed by ISO. It characterizes and standardizes the communication functions of a telecommunication and computing network. Its goal is the interoperability of different communication systems with standard communication protocols. This model divides a communication system into seven abstraction layers

Q7. Explain the purpose of Standard Organization.

Purpose of Standard Organization

Standard Organization develops, coordinates, revises, amends and reissues technical standards. These standards are intended to address the requirements of a group of concerned devices. There are several organizations working on standardization of computing equipment to enable the interoperability among different devices manufactured by different companies in different regions. IEEE, IETF, ITU and ANSI are the examples of standard organizations.

Q8. List merit and one demerit of each topology.

Bus Topology

Advantages of Bus Topology

1. It is easy to set up, handle, and implement.
2. It is best-suited for small networks.
3. It costs very less.

Disadvantages of Bus Topology

1. The cable length is limited. This limits the number of network nodes that can be connected.
2. This network topology can perform well only for a limited number of nodes. When the number of devices connected to the bus increases, the efficiency decreases.
3. It is suitable for networks with low traffic. High traffic increases load on the bus, and the network efficiency drops.
4. It is heavily dependent on the central bus. A fault in the bus leads to network failure.
5. It is not easy to isolate faults in the network nodes.
6. Each device on the network "sees" all the data being transmitted, thus posing a security risk.

Ring Topology

Advantages of Ring Topology

1. The data being transmitted between two nodes passes through all the intermediate nodes. A central server is not required for the management of this topology.
2. The traffic is unidirectional and the data transmission is high-speed.
3. In comparison to a bus, a ring is better at handling load.
4. The adding or removing of network nodes is easy, as the process requires changing only two connections.
5. The configuration makes it easy to identify faults in network nodes.
6. In this topology, each node has the opportunity to transmit data. Thus, it is a very organized network topology.
7. It is less costly than a star topology.

Disadvantages of Ring Topology

1. The failure of a single node in the network can cause the entire network to fail.
2. The movement or changes made to network nodes affect the entire network's performance.
3. Data sent from one node to another has to pass through all the intermediate nodes. This makes the transmission slower in comparison to that

in a star topology. The transmission speed drops with an increase in the number of nodes.

4. There is heavy dependency on the wire connecting the network node

Star Topology

Advantages of Star Topology

1. Due to its centralized nature, the topology offers simplicity of operation.
2. It also achieves isolation of each device in the network.
3. Adding or removing network nodes is easy, and can be done without affecting the entire network.
4. Due to the centralized nature, it is easy to detect faults in the network devices.
5. As the analysis of traffic is easy, the topology poses lesser security risk.
6. Data packets do not have to pass through many nodes, like in the case of a ring network. Thus, with the use of a high-capacity central hub, traffic load can be handled at fairly decent speeds.

Disadvantages of Star Topology

1. Network operation depends on the functioning of the central hub. Hence, central hub failure leads to failure of the entire network.
2. Also, the number of nodes that can be added, depends on the capacity of the central hub.

3. The setup cost is quite high.

Q9. Discus brief of LAN, WAN and MAN.

1. **Local Area Network (LAN)**

   LAN is a group of computer and peripheral devices which are connected in a limited area such as school, laboratory, home and office building. Useful resources like internet access, storage space and printers can be shared through LAN. It can be built with inexpensive hardware such as hubs, switches, network adapters and network cables. Data and software are also shared through LAN.

2. **Metropolitan Area Network (MAN)**

   In MAN, computer network can spread across an entire city, college campus, or a small region. It can cover the area of several miles and may include multiple small networks or LANs. MANs offer very fast communication but they are expensive to establish. Therefore, only large business organization or universities set up MAN. It also requires security measures to prevent unauthorized access.

3. **Wide Area Network (WAN)**

   A Wide Area Network is used for long distance transmission of data. WAN helps to cover a larger geographical area and connect cities, provinces or even countries. Using WAN technology, computers may be linked together in different countries using satellites, microwaves or telecommunication links. Therefore, large business, research and educational organizations situated at longer distances use WAN. A WAN

may include multiple MANs and LANS. WANs are set up with expensive devices and need some dedicated connections.

Q10. Discus the Basic Terminologies of Data Communication

Data

Collection of raw facts and figures is called data. The word data is derived from Latin language and it is plural of Datum. The text, numbers, symbols, images, voice and video which are processed by computers and digital devices are called data. Data can be considered as unprocessed information.

Data Communication

Data Communication is the process of transferring data electrically from one place to another. It is the process of exchange of data and information between two parties such as human and electronic or computing device.

Data Transmission

The data transmission means emission of data in any direction via wireless or wired medium. Transmission may occur between source and destination.

Analog Signals

Analog signals are a continuously varying signals or waves that change with time period and used to represent data. An analog signal can be used to measure changes in some physical quantities such as light, sound, pressure or temperature.

Digital Signals

A digital signal is an electrical signal that is converted into a pattern of bits to represent a sequence of discrete values, at any given time. It can only be one of the finite numbers represented as 0 or 1.

Q11. Difference between Analog and Digital Signals

Analog Signals	Digital Signals
An analog signal is a continuous wave that changes by time period.	A digital signal is a discrete wave that carries information in binary form.
Analog signal has no fixed range	Digital signal has a finite number i.e. 0 and 1.
An analog signal can easily be disturbed by other signals or waves.	A digital signal is less prone to other signals disturbance
The human voice is example of an analog signal.	Signals used by computer are the digital signal
An analog signal is represented by a sine wave.	A digital signal is represented by square waves.
Analog signals are long term waves need to be boosting.	Digital signals are short term signals remain within digital devices / electronic.

Choose the right answer:

1. Wired Media is also called:

a) targeted media b) directed media

c) guided media d) unguided media

2. Communication system is made up of

a) three components b) four components

c) five components d) six components

3. Both Physical and Logical addresses are:

a) different b) unique

c) permanent d) temporary

4. If you are an electrical or electronic engineer, you should join:

a) IEEE b) IETF

c) ITU d) ANSI

5. The topology in which all computers are connected to a central device called hub is:

a) Bus b) Star

c) Ring d) Tree

6. Change in the shape of signal between sender and receiver is called:

a) attenuation b) interruption

c) noise d) distortion

7. Router determines data path to transfer data packets which is the:

a) shortest b) longest

c) cheapest d) optimal

8. Converting digital signal to analog is called:

a) modulation b) modification

c) bandwidth d) multiplexing

9. The number of bits used in an IPV 4 address are:

a) 16 b) 32

c) 64 d) 128

10. The loss of energy in transmission signal refers to:

a) Attenuation b) Distortion

c) Noise d) Jitter

Chapter 5: Computer Security and Ethics

Q1. What do you know about computer security?

COMPUTER SECURITY

The computer has become an important part of our life. We store important data on our computers in the shape of documents, pictures, programs, etc. Therefore, we expect that all our information must remain safe and our computer runs properly without any problem. Few threats can cause problems for our computers. These threats may be different types of viruses or unauthorized use of a computer. To prevent our computer from such threats, we need to abide by computer security. Computer security is the protection against theft or damage to our computer hardware, software and information present on it.

Q2. Why computer security is important

Importance of Computer Security

Computer security is important for our computer's overall health. It keeps our information protected and helps prevent viruses and malware, which allows programs to run quicker and smoother. It safeguards confidential and sensitive information

Q3. What is cyber crime

Cybercrime

Cybercrime is the crime that is committed through a computer and network. Cybercriminal uses devices to gain unauthorized access to important information. Stealing passwords and important information, hacking social media accounts, accessing anyone else's account and making transactions, committing online frauds are some of the examples of cybercrime. Cybercrime is illegal and also punishable. According to Pakistan's Cybercrime Law, any offender who interrupts the privacy of a person or organization and harms their repute may be sent to jail for three to five years including a heavy fine.

Q4. What do you know about hacker and crackers?

HACKERS

Hacker can be a person who has in-depth knowledge of computer systems, networks, and programs. Hacker maybe someone who uses his or her extensive skills to identify and overcome a network loophole. Hackers constantly seek further knowledge and freely share what they have discovered. Hackers are generally considered as bad people however, hackers can also help us to improve the data and network security

CRACKERS

Crackers are persons who gain unauthorized access to another system. They bypass passwords or licenses of computer programs, change source code or intentionally breach computer security. They do it with negative intentions. Crackers can also make targeted system unavailable or non-functional. They commit these activities generally for money but they may do it for fame or just for challenge or fun.

Q5. List some computer crimes (cyber crime) in real life.

There are many genres of computer crime or now called cyber-crimes. Some examples are

1. Hacking
2. Credit and Debit Card Scam
3. Phishing
4. Clickjacking
5. Cyber Bullying or Harassment

Hacking

Hacking is perhaps the most common crime in the computer world. Hackers can steal our WiFi, email or social media accounts' passwords. Hackers also attack a website and take it down. However, the scope of hacking is much wider. The

hackers can also steal sensitive information from government and business organizations, make fraudulent transactions and erase data on the cloud or network computers.

Credit and Debit Card Scam

Keeping debit or credit cards is a common practice but insecure use of these cards can be dangerous. If a person has information about our debit or credit card he or she can make fraudulent transactions. There are various ways to get this information. One way is through scamming. Scammers set small machines inside an ATM or credit card machine. These machines copy the data which is then misused by the scammers. Debit and credit cards are also secured with PIN codes. User has to keep this code secret otherwise any person can use the card for online shopping and other purposes.

Phishing

Phishing is a method of trying to gather personal information using false e-mails and websites. In Phishing, perpetrators contact the target person through email, telephone or text message and pose as a legitimate and trusted individual. He or she asks the target to provide sensitive data such as personally identifiable information, banking and credit card details and passwords for different reasons. The information is then used to access different accounts and can result in identity theft and financial loss.

Clickjacking

Have you ever seen any video tagged as "OMG? You won't believe what this boy has done!" or did you nd a button on a website that asked to click to claim a reward you had never applied for? This is a kind of fraud which is called Clickjacking. Usually, culprits target children or novice internet users to click on a link containing malware or trick them into sharing private information via social media sites.

Cyber Bullying or Harassment

Electronic means like a computer, mobile phone or internet are also used for online bullying or harassment. Harmful bullying behavior can include posting rumors, threats, passing inappropriate remarks, leaking personal information,

blackmailing and committing hate speech. The perpetrator does it with the intent to cause harm to the victim. Victims may experience lower self-esteem, intent to commit suicide and a variety of negative emotional responses, including being scared, frustrated, angry and depressed.

Q6. What is malware? Name and discus different malware.

MALWARE

The term malware is the contraction of malicious software. Malware is a broad term that encompasses computer viruses, worms, spyware, adware and others. Malware is a program that is written generally to cause a mess. They can be so dangerous that they can also damage devices.

(i) Computer Virus
(ii) Worm
(iii) Adware
(v) Spyware

(i) Computer Virus

A computer virus is a computer program that can spread across computers and networks by making copies of itself, usually without the user's knowledge. It can also modify other computer programs, insert its own code and change computer settings. Viruses are harmful. Viruses generally latch on a host file and when they execute they infect other files or programs.

Example

Boot Sector, Resident, Macro Viruses and File Infector

(ii) Worm

A computer worm spreads copies of itself from computer to computer. A worm can replicate itself without any human interaction. It does not need to attach itself to a file or program to cause damage. It can do several malicious tasks, such as dropping other malware, copying itself onto devices physically attached to the affected system, deleting files, and consuming internal storage and memory resources.

(iii) Adware

Adware is advertising-supported software. They present endless ads and pop-up windows that could potentially consume memory and processing resources. Adware can also change the different settings of internet browsers like homepage and default search engine. Normally, these are not as dangerous as other malware.

(iv) Spyware

Spyware is a malware that monitors a device and steals important information about a person or organization without their consent and sends such information to another person or organization. Spyware takes control over a mobile phone or computer without the user's knowledge. They capture information like web browsing history, e-mail messages, usernames and passwords and online payment information.

Q7. What is antivirus? Name Some antivirus software

1. Avast
2. Norton
3. McAfee

Q8. What are the types of **Security Mechanism?**

(i) Username and Password:

A username and password are the pair of keywords known by the user. They are presented to the computer to authenticate the user. Usernames and passwords are the default authentication mechanism on the web today. However, recent large scale computer attacks have made usernames and passwords an unacceptable authentication mechanism.

Personal Identification Number

PIN stands for Personal Identification Number. It is a security code for verifying your identity. Similar to a password, your PIN should be kept secret because it allows access to important services such as financial transactions and

confidential emails. The PIN provides security when a credit/debit card is lost or stolen because the PIN must be known before making money withdrawal or transfer.

Biometric Verification

Unlike authentication processes, biometrics verification makes sure that the real person gets access to the data or device. Biometric authentication relies on the unique biological characteristics of a person. Biometric authentication systems captures data in real-time and compare it with existing data in database. If both samples of the biometric data match, authentication is confirmed. Scanning fingerprints are the most common way of biometric.

Q9. What is Intellectual Property Right?

Intellectual Property Right

When any person develops software, writes a book or research paper or invents any method or the machine, it becomes the intellectual property of that person. Intellectual property is intangible creations of the human intellect. Just like other property the intellectual property can be stolen. To prevent theft or illegal use or spread of intellectual property, Intellectual Property Right is exercised. Through these rights, intellectual property is protected with the help of copyrights, patents, and trademarks.

Q10. What do you know about patent, copyright and trademark?

(i) Patent

A patent is a grant of exclusive rights for an invention to make, use and sell the invention for a limited period, in Pakistan 20 years. Owning a patent gives the patent holder the right to stop someone else from making, using or selling his or her invention without permission.

(ii) Copyright

Copyright is a legal instrument that provides legal rights to the creator of artwork, literature, or a work that conveys information or ideas. In simple words, copyright is the right of copying. Copyright gives control over how the

work is used. The © sign is also often displayed on copyrighted objects.

(iii) Trademark

Trademark identifies a product or service and distinguishes it from other products and services. Trademarks are protected by intellectual property rights which identifies that the product or service belongs to a specific organization. It can be an easily recognizable word, phrase, logo, or symbol and often mentioned as TM (Trade Mark).

Q11. Write short note on software piracy.

Software Piracy

Software piracy is referred to the illegal use, copying or distribution of copyrighted software. Software piracy is a huge threat to the software industry. It causes a significant loss of revenue for developers and vendors. Since they earn less profit, they are forced to pass these costs on to their customers.

Software companies have tried various techniques to stop software piracy but most of them have remained unsuccessful. They applied for copy- protection which demands the user to enter certain keys or credentials. Today, most software require registration which is mainly online. However, these measures could not stop software piracy.
Using pirated software is also risky for users. Aside from the legal consequences of using pirated software, users of pirated software lose some practical benefits as well. Pirated software may not work properly or stop working at any time.

Q12. What is plagiarism?

Plagiarism

Plagiarism is presenting someone else's work or ideas as your own without full acknowledgment to the author or conceiver. Academic honesty demands that the users of any ideas, words and data should acknowledge the originators. Plagiarism is unethical and can have serious consequences. Colleges and universities encourage students to submit their

original work and cite the ideas and words borrowed from any other sources. Failing to this may cause serious penalties. There are online services to check and FIx the plagiarism issues. Academic organizations hire the plagiarism detection service. One of the most used services is Turnitin.

Chap 6: Web Development

Q1. Define the following terms

(i) World Wide Web (WWW)

The word world wide web (www) is commonly known as the web. The Web is a collection of computers connected through a network to provide publicly accessible information.

(ii) Web Page

A webpage is a document commonly written in HTML that is accessible through internet by using internet browser.

(iii) Website

A website is a collection of web pages containing text, images, and all types of multimedia related to a specific set of information. A website can be accessed through a Uniform Resource Locator (URL).

(iv) Web Browser

A web browser is a software application for accessing websites on the world wide web. Most common web browsers include Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, and Safari.

v) Uniform Resource Locator (URL)

It is the address of a resource on the internet (e.g. https://www.google.com). It includes the following two components.

· The protocol used to access the resource (https://)

· The location of the server. (www.google.com)

(vi) Search Engine

A Search Engine is a web-based tool that enables a user to locate information on the web. Most popular search engines are Google, Yahoo, and Bing.

(vii) Home Page

A home page (also known as landing page) is a web page that serves as the starting point of the website.

(vii) Web Hosting

Web Hosting is a service that allows a web developer to make a website publicly accessible through the internet.

(viii) Web Server

A web server is the computer that is responsible for serving a website and all of its content including text and media to a user.

Q2. What are the different types of websites?

Portal:

A web portal is a website that provides a single access point of information for all of its users. It collects information from different sources like emails, forums, search engines and presents it to the user in a uniform way. Yahoo and MSN are common examples of web portal.

News:

A news website is the modern-day alternative for newspapers. Such websites contain everyday information related to current affairs, sports, politics, weather, health, technology, entertainment, etc. Informational: Informational websites provide detailed information of any field. There are many dedicated informational websites for science, arts, sports, online trainings, research, etc.

Educational:

Educational websites are purely designed to deliver educational material for both, teachers and students such as sabaq.pk, khan academy.org, etc.

Personal:

A person can share about his or her biography or achievements in a custom developed website.

Business:

A business website is the best way for any organization to market their products and services. It also tells about the teams, policies and procedures of that business. For instance, www.psx.com.pk is the website of Pakistan Stock Exchange.

Blogs:

A blog is a special type of website that is composed of articles and posts. These articles are organized into categories and sorted by the time when they were published. WordPress is a popular blog site. Forums: A forum is an online place where different users can discuss about any topic. These topics can be categorized so that users can easily locate topics of their interest.

Entertainment:

An entertainment website serves content like videos or games purely for the purpose of entertainment. YouTube is widely used for entertainment.

Social:

Social website is a platform where different people get together and socialize with each other. They can also share their ideas, opinions and media. Facebook and Twitter are instances of social networking websites.

Q3. What is HTML? Write Steps Involved In Creating Web Page In HTML

HTML

HTML stands for Hypertext Markup Language. HTML is used to create web pages that are displayed by web browsers mainly on internet.

It is standard markup language for text documents. It allows the user to create structured content by adding headings, paragraphs, links, blockquotes and other media. It takes advantage of simple code structures called tags and attributes to achieve formatting, graphic and navigation effects on web pages.

Step 1:

Text Editor Start by simply creating a new blank file in a text editor of your choice. A simple text editor like notepad can be used to start coding HTML for a web page.

Step 2:

Write HTML code in Text Editor

Example

```
<html>
    <head>
        <title>My Website</title>
    </head>
    <body>
        Welcome to my first web page.
    </body>
</html>
```

Step 3:

Save HTML Page Go to File menu and click on Save. Make sure to provide .htm or .html extension for the file being saved. This will save the document as a web page instead of a plain text file. Step 4: View HTML Page in Browser Open the saved HTML □le in your default web browser. The web browser will automatically translate HTML codes to correctly display the web page.

Q4. Briefly describe the html tags

<!DOCTYPE html>

It specifies the HTML version used so the web browsers can show the web page according to HTML standards. All HTML documents must start with this tag.

<html>

All HTML documents start with <html> tag and end with </html> tag.

<head>

It is used to define additional information about the web page. It contains a set of tags such as <title>, <meta> , <style>,<script>, etc.

<body>

The main content of the web page is contained between <body> and </body>

<title>

It defines the title of a web page. Titles are very important as they appear on top of the browser window and displayed on search engine result pages.

<footer>

It defines the footer for a web page. e.g. “Copyright 2020. All rights reserved.”

<p>

It defines a paragraph of text in a webpage. It always starts from a new line and adds space before and after its text.

**
**

It defines a line break and starts the following content from a new line. Unlike <p> tag, it does not add space before or after the break.

<hr>

It draws a horizontal line where it is defined. It is used to differentiate between sections of the page.

<h1> - <h6>

It is used to define six levels of HTML headings (h1, h2, h3, h4, h5 and h6) with <h1> being heaviest heading and <h6> being the lightest heading.

<b>, <i>, <u>

These tags are used to bold, italicize and underline text respectively.

<pre>

It is used to define a preformatted text. The web browser displays such text with spaces and line breaks as defined in HTML codes.

<font>

It is used to define the font, size and color of its text. This tag can be composed with three attributes: size, color and face. This tag is supported till version 4.1 of HTML.

** **

It is used to align its text to the horizontal center of the web page. This tag is supported till version 4.1 of HTML.

<sub>

It defines subscript text which is under the baseline of other text and has a smaller size. e.g. H2O

<sup>

It defines superscript text which is slightly above the normal line of other text and has a smaller size.

Q5. Name some web designing tools

WEB DESIGNING TOOLS

Following is the list of some of the tools that help in designing and developing a website:

1. Microsoft FrontPage
2. Coral Draw
3. Adobe Dreamweaver
4. WordPress
5. Microsoft Visual Studio
6. Wix
7. Figma
8. Coffee Cup HTML Editor
9. Adobe XD

Chapter # 7

INTRODUCTION TO DATABASE SYSTEM

1. What is database? Give its some uses.

Database

A database stores data in organized form. A database is composed of tables which contain rows and columns. These rows and columns are called records and fields respectively.

Uses Of Database

1) These days, database can be seen in every field of life, for example in industries, health, agriculture, schooling, business and banking.
2) The databases can be developed according to the size of its records for a particular organization.
3) A database is playing a leading role to enhance the efficiency and performance of any organization.

2. **What do you know about Database Management System (DBMS). Also give its examples**

Database Management System (DBMS)

Databases are usually developed, maintained and controlled by the Database Management System (DBMS). The DBMS essentially serves as an interface between databases and end users or application programs, ensuring that data is consistently organized and remains easily accessible.

Examples

a) MySql
b) Oracle
c) Microsoft SQL Server
d) MongoDB

3. What are the **Advantages of Database Management System over the Flat File System?**

DBMS	Flat file system
Multiple users can access data simultaneously	only users can access data at a time
Capable of handling huge sets of data	Capable of handling smaller sets of data

Allows non-duplication and integrity	Increase duplication and redundant
Supports online access	Does not Supports online access

4. **Mention Characteristics of Database Management System**

Characteristics of Database Management System

a) Multiple users can access DBMS and can view, add, edit and delete records.
b) A DBMS offers tools like Queries, Views and Forms which help users to manipulate data easily and more effciently.
c) A DBMS is more secure and reliable.
d) DBMS allows distribution of data in multiple tables by making use of features like keys and relationships between fields of those tables.
e) This allows lesser duplication of data and results in lesser redundancy.
f) Preparing backups and providing limited permissions to the users are features of DBMS.
g) DBMS can handle large and complex data more conveniently. Therefore, it is preferred by the medium and large organizations.

5. **What are the basic Components of DBMS?**

Table

It is a collection of data elements organized in shape of rows and columns. A contact list may be one of the simplest examples of a table. The marks record prepared by a class teacher is also an example of a table.

Field

It is the smallest component in a database. It is where the actual data is stored during data entry. All data fields in the same table, have unique names. Fields are also called attributes or columns.

Record

A single entry in a table is called a record. Records are also referred as tuples or rows. A record is made up of two or several data items which are also called tuples in a table representing a set of related data

Data Type	Description	Examples
Integer	Holds only whole numbers.	145, -35, 74586
Floating Point	Holds numbers with decimal points.	5.6, 3.14, 554.9
Character	Stores only one character.	A, B, c, d
String	Can store a combination of numbers, letters and special characters.	Pakistan, Computer, @admin
Boolean	Can hold only Boolean values i.e. true or false.	1,0
Date & Time	Stores date and time in specified format.	01-01-2020 11:30

Views

In a database the data is stored in tables. However, we can see that data through views. Views do not store data and just show the information virtually. They have the ability to fetch data from different tables.

6. Describe the steps for creating a table using a Design View

1) To create tables in Access using "Design View," click on the Create tab and click on the Table icon. Then pull down the View menu and choose Design View.

2) A new table then appears in the Table Design View. Note that the default name assigned to the table is Table1.
3) Type the name of a field into the "Field Name" column.

4) Then use the drop-down menu in the "Data Type" column to assign the field a data type.
5) If desired, type a description of the data stored in this field

6) Repeat steps 4 and 5 until you have created all of the necessary table fields. An example of a Table may be customer Table that has following entries.

Field Name	Data Type	Description
Customer ID	Number	The Unique Identifier for a customer
First Name	Text	The First Name of the customer
Last Name	Text	The Last Name of the customer
Address	Text	The Address of the customer

7) Click the "Save" button in the Quick Access toolbar.
8) Then type a name for the newly created table and click "OK".

7. Write the Steps for creating a query or view using Design View.

Steps for creating a query or view using Design View

1. To make a query in design view, click on the "Create" tab in the Ribbon and pull down the "Queries" group and click on "Query Design" button.

2. In the "Show Table" dialog box, add the table or tables that you want to add to query design view.

3. Next, add the fields from these tables that you want to view in your query results or view. If you want to add all of the fields of a table into your result set, you can click and drag the first field in the table, shown as an asterisk.

4. Once you have added all the necessary tables and □elds to the query or view, click the "Close" button in the "Show Table" dialog box to close it and display the query design view.

5. To run a query and view the result set, you can click the "Run" button in the "Results" group of the "Design" tab in the "Query Tools" contextual tab on the office Ribbon.

6. The result set looks like a table. This result set is a refection of data from the selected □elds of the tables. It is also known as a view.

7. Click the "Save" button in the Quick Access toolbar. Type a name for your view and click "OK" to save the query.

8. What is data modeling? What are its important components?

Data Modeling

Data modeling is a process of developing conceptual representation of data objects and their relations. Data models are used to express how the information will be stored in database. This helps to identify the most important fields and remove the irrelevant data.

(i) Entity

(ii) Relationship

(iii) Referential Keys

9. Describe the components of Data modeling.

Entity

In literal sense, an entity is any individual object which has its own qualities and properties. In database terms, an entity is an independent table and its fields are known as attributes. As an example, a Payroll database will contain an entity named Employees. The Employees entity will contain various attributes like Employee ID, Name, Designation, Salary, etc.

Relationship

When the database structures grew and became more complex, a lot of data started to become redundant which means that data was being unnecessarily duplicated. This created a need to connect data entities instead of repeating same data in multiple tables. This resulted in the creation of relationships and Relational Database Management Systems (RDBMS).

Referential Keys

The relationships are configured by using referential keys on entities. The keys determine a certain set of rules that must be followed by the data stored in a field of an entity. In larger databases, keys are very important to uniquely identify a specific record.

10. Describe the types of relationship.

Three types of relationships can be defined between entities.

(i) One to One Relationship

This type of relationship defines that a record in one entity can be connected to only one record in another entity. This is not a very common type of relationship because the data from related entities can directly be placed in a single entity.

(ii) One to Many Relationship

This type of relationship defines that a record in one entity can be connected to many records in another entity. This is the most common type of relationship used in relational databases

(iii) Many to Many Relationship

In this type of relationship, one or more records of one entity are connected to one or more records of another entity.

11. What are the types of referential Keys

Two types of keys are most commonly used in RDBMSs:

(i) Primary Key

A primary key is used to uniquely identify a record in an entity. When a primary key is applied to any attribute in an entity, it forces the rules of Primary Key onto that attribute.

(ii) Foreign Key

A foreign key is used to define the connection or relation between two entities. The foreign key of one entity is configured to be connected to the primary key of another entity. When a foreign key is applied on an attribute, it enforces that the value for that attribute should match any record in the related entity having a primary key.

12. What are the steps to design ER model

Steps to design ER Model

1. Identify and design the entities based on the requirements of its users.

2. Identify and design the attributes within the required entities.

3. Identify the relationships required between entities.

4. Define Primary Keys in interrelated entities.

5. Design Foreign Key relationships based on requirements and bind them to previously created Primary Keys.

6. Generate an automated Entity Relationship Diagram