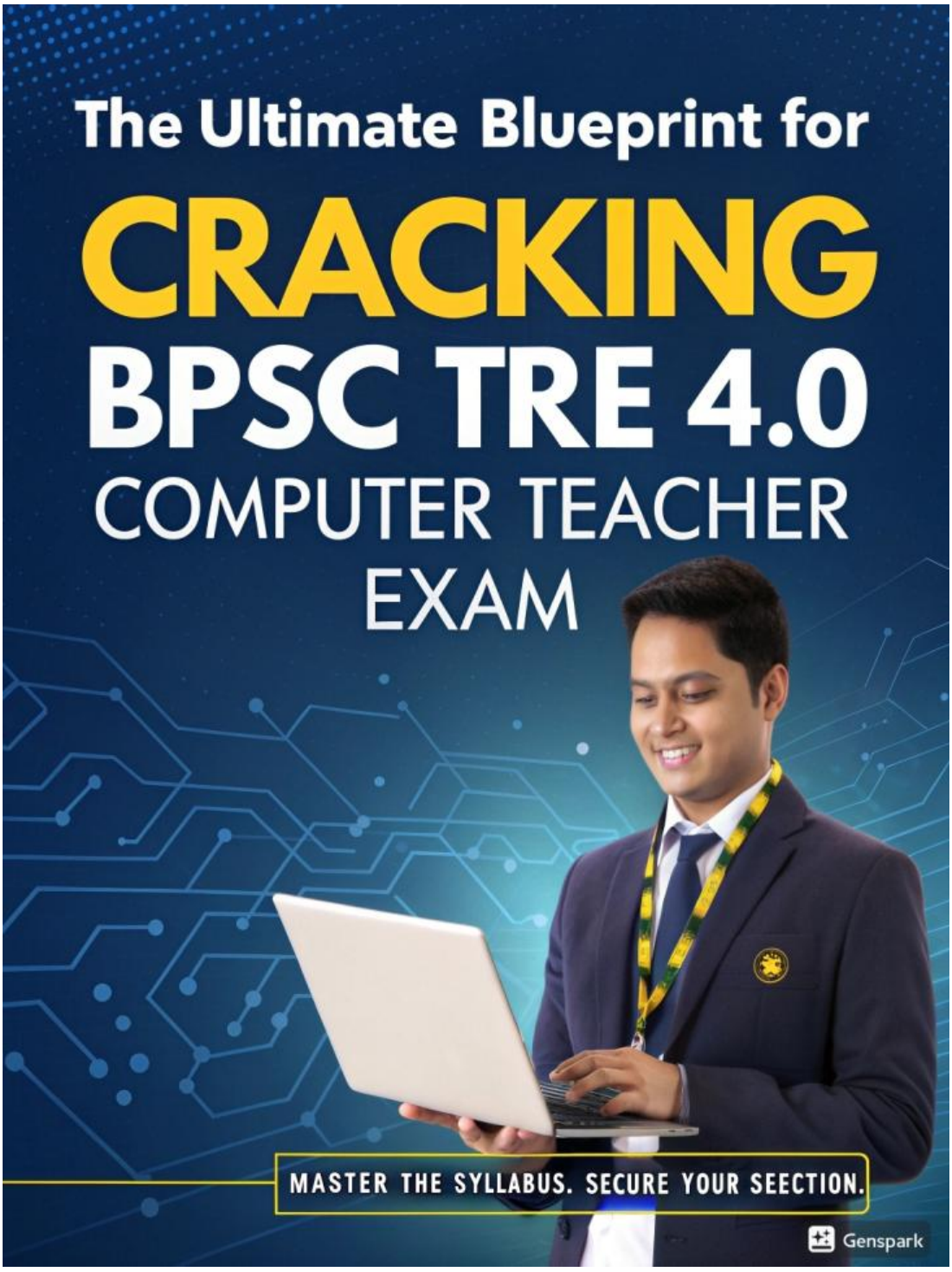
Syllabus wise NOTES for BPSC TRE 4.0 Computer Teacher Exam Preparation



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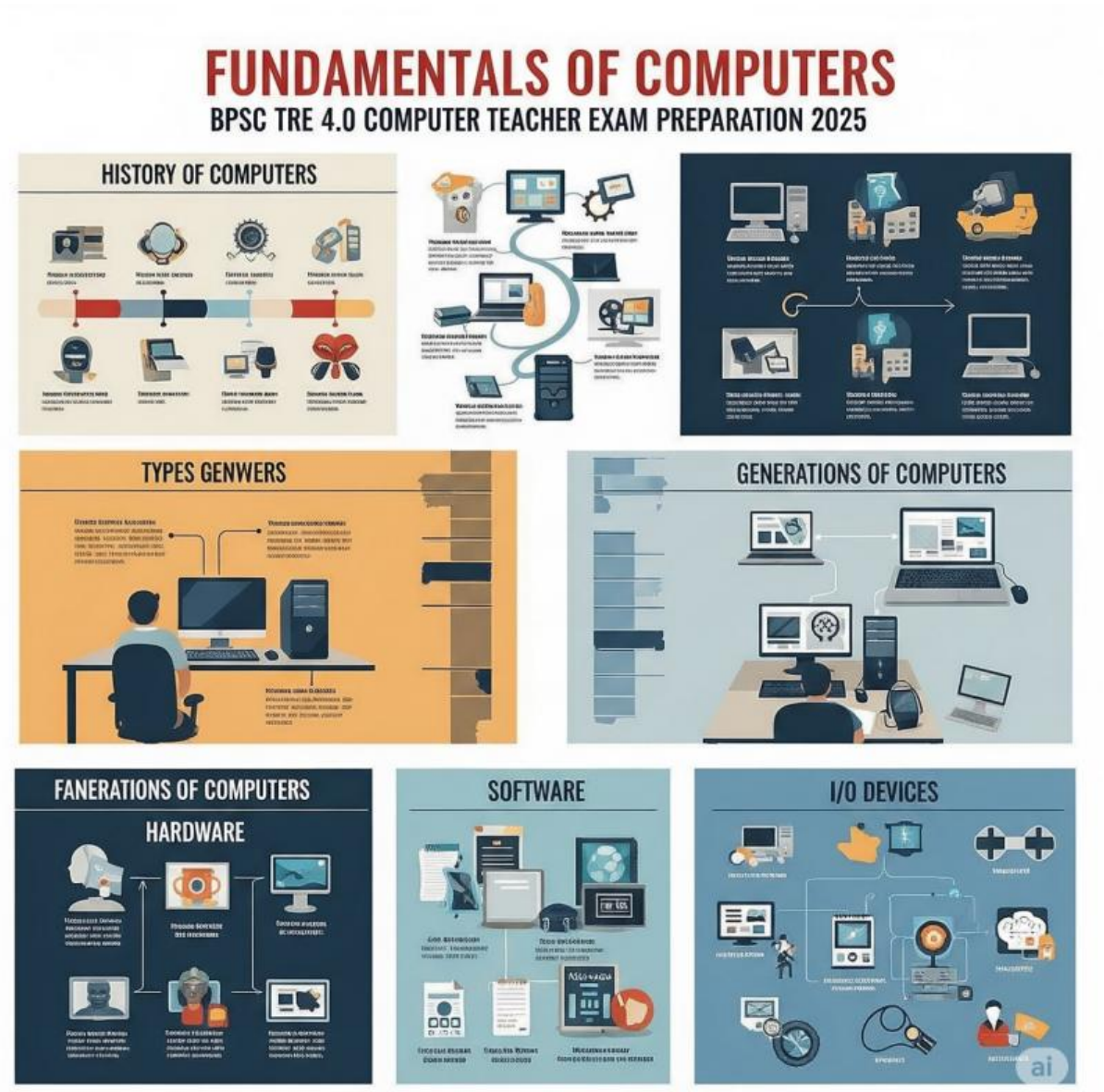
Topic 1: Fundamentals of Computers: History, Types, Generations, Hardware, Software, I/O Devices



Introduction to Computer Fundamentals

A computer is an electronic device that processes raw data to produce meaningful information. Its evolution spans thousands of years, from primitive counting tools to modern supercomputers. This guide covers the **history, types, generations, hardware, software, and input/output devices** of computers.

2. History of Computers

Ancient to Modern Era

Abacus: The first known calculating device, used in ancient Babylon and China.
Mechanical Calculators: Blaise Pascal (Pascaline), Gottfried Leibniz (Stepped Reckoner).
Analytical Engine: Designed by Charles Babbage; considered the first concept of a programmable computer.
Punched Card Machines: Used by Herman Hollerith for the 1890 US Census.
Electronic Computers:
ENIAC (1945): First general-purpose electronic digital computer.
UNIVAC I (1951): First commercial computer in the US.

Early Computing Devices (3000 BC – 19th Century)

The history of computers begins with the abacus, invented in Babylon around 3000 BC. This wooden frame with beads enabled basic arithmetic operations. In 1642, Blaise Pascal created the Pascaline, a mechanical calculator for addition. Later, Gottfried Leibniz improved it to perform multiplication. These devices laid the groundwork for mechanical computation.

Electromechanical Era (19th–20th Century)

1822: Charles Babbage designed the Difference Engine, the first automated mechanical calculator.

1890: Herman Hollerith developed punched-card machines for the U.S. Census, leading to the founding of IBM.

Electronic Computers (20th Century)

1941: Atanasoff-Berry Computer (ABC), the first electronic digital computer, used vacuum tubes for solving equations.
1945: ENIAC, the first general-purpose electronic computer, weighed 30 tons and occupied 1,800 square feet.
1951: UNIVAC I became the first commercial computer, used for business applications.

Modern Computing (21st Century)

2001: Apple released macOS, revolutionizing personal computing.
2010s: Tablets and smartphones emerged, driven by advancements in microprocessors.

3. Types of Computers

By Data Handling

Analog Computers: Work with continuous data (e.g., thermometer).
Examples: Thermometers, speedometers.

Digital Computers: Work with discrete data (binary 0s and 1s); most common today.
Examples: Laptops, smartphones.

Hybrid Computers: Combine analog and digital features (e.g., hospital monitoring systems).
Based on Size and Capacity

By Size and Power

Supercomputers: Fastest, used for weather forecasting, scientific research (e.g., climate modeling).
Example: Fugaku (Japan).
Mainframe Computers: Large organizations, bulk data processing. Handle large-scale data processing for corporations (e.g., banking).
Minicomputers: Mid-sized, used in universities and businesses.
Microcomputers: Personal computers, laptops, tablets, smartphones.

Digital Computers:

Use binary digits (0s/1s) for calculations.
Examples: Laptops, smartphones.

4. Generations of Computers

Generation	Technology Used	Example	Features
First (1940-56)	Vacuum Tubes	ENIAC	Large, slow, high power use
Second (1956-63)	Transistors	IBM 1401	Smaller, faster, less heat
Third (1964-71)	Integrated Circuits	IBM 360	Even smaller, multitasking
Fourth (1971-Now)	Microprocessors	PCs, Laptops	Affordable, user-friendly
Fifth (Now-Future)	AI, Quantum, Nanotech	Modern AI PCs	Intelligent, voice/image recognition

5. Hardware

Hardware refers to the physical parts of a computer system.

A. Input Devices

Keyboard: For typing text and commands.
Mouse: Pointing device for navigation.
Scanner: Converts documents/images into digital form.
Microphone: Records audio input.
Webcam: Captures video input.

B. Output Devices

Monitor: Displays text, images, and videos.
Printer: Produces physical copies of documents.

Speakers: Output sound.

C. Processing Device
CPU (Central Processing Unit): The "brain" of the computer, processes instructions.
ALU (Arithmetic Logic Unit): Performs calculations.
CU (Control Unit): Directs operations.

D. Storage Devices
Primary Storage: RAM (Random Access Memory) – temporary, volatile.
Secondary Storage: Hard Disk, SSD, Pen Drive – permanent, non-volatile.

6. Software
Software is a set of instructions that tells the hardware what to do.

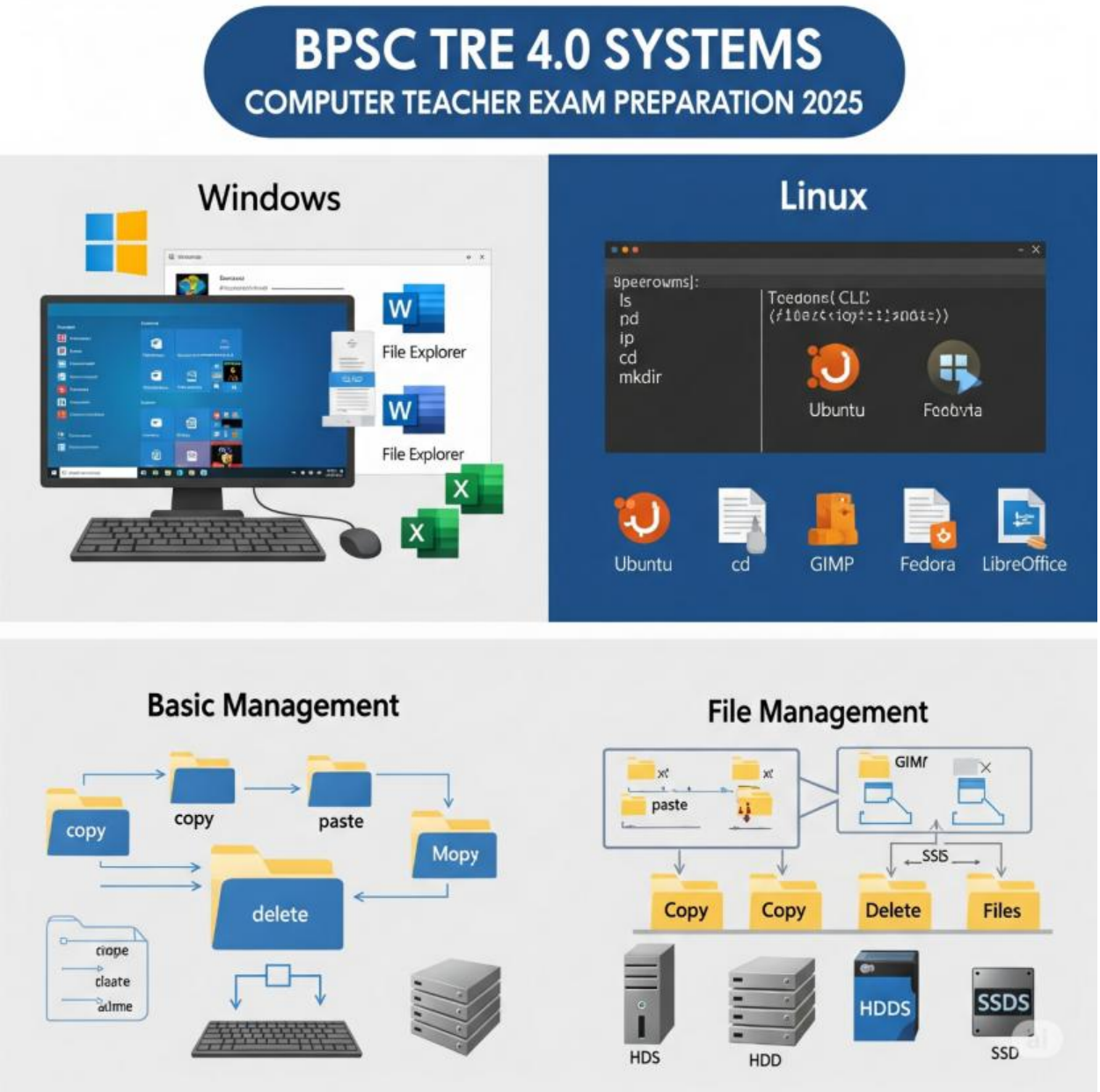
A. System Software
Operating System (OS): Manages hardware and software (Windows, Linux, macOS).
Utility Software: Tools for maintenance (antivirus, disk cleaner).

B. Application Software
Word Processors: MS Word.
Spreadsheets: MS Excel.
Browsers: Chrome, Firefox.

7. Input/Output (I/O) Devices
Input Devices: Keyboard, mouse, scanner, microphone, joystick.
Output Devices: Monitor, printer, speakers, projector.

8. Data Representation
Digital Data: Uses binary (0,1).
Analog Data: Continuous signals (sound, temperature).
Number Systems: Decimal, Binary, Hexadecimal.

Topic 2: Operating Systems: Windows, Linux, Basic Commands, and File Management



1. **What is an Operating System (OS)?**

An Operating System (OS) is system software that acts as an interface between the user and computer hardware. It manages hardware resources, runs applications, and provides services to users and programs.

Main Functions:
Manages files and folders
Controls input/output devices
Allocates memory and processing power
Provides a user interface (GUI or CLI)
Handles security and user permissions

2. Windows Operating System
Windows is a popular OS developed by Microsoft. It is widely used in homes, schools, and offices.

Key Features:

Graphical User Interface (GUI): Uses icons, windows, and menus for easy navigation.
Taskbar & Start Menu: Quick access to programs and settings.
File Explorer: Tool to manage files and folders.
Control Panel/Settings: For system configurations.
Multitasking: Run multiple applications at once.
Common Windows Versions: Windows 7, Windows 8, Windows 10, Windows 11.

Basic Tasks in Windows:

Creating, renaming, copying, moving, and deleting files/folders.
Installing and uninstalling software.
Using shortcuts (e.g., Ctrl+C to copy, Ctrl+V to paste).

2. Linux Operating System

Linux is an open-source OS, meaning its source code is freely available. It is used in servers, desktops, and embedded systems.

Key Features:

Open-source: Free to use and modify.
Security: Known for strong security and stability.
Customizable: Many distributions (Ubuntu, Fedora, Debian).
Command Line Interface (CLI): Powerful text-based control.
Common Linux Distributions: Ubuntu, Fedora, Debian, Red Hat, Linux Mint.
Linux Desktop Environment: Similar to Windows but may look different based on the distribution (e.g., GNOME, KDE).

3. Basic Commands (Windows & Linux)

A. Windows (Command Prompt)
dir – List files and folders in a directory.

cd – Change directory.
copy – Copy files.
del – Delete files.
mkdir – Create a new folder.
rmdir – Remove a folder.

B. Linux (Terminal)

ls – List files and folders.
cd – Change directory.
cp – Copy files or folders.
mv – Move or rename files/folders.
rm – Remove files.
mkdir – Make a new directory.
rmdir – Remove an empty directory.
pwd – Print working directory (shows current location).
cat – View file contents.
touch – Create a new empty file.
Note: Linux commands are case-sensitive.

4. File Management

Managing files and folders is a key function of any OS.
Common File Operations:
Create: Make new files or folders.
Rename: Change the name of a file or folder.
Copy: Make a duplicate of a file or folder.
Move: Change the location of a file or folder.
Delete: Remove files or folders permanently (or send to Recycle Bin/Trash).
Search: Find files or folders by name or type.

File Extensions:

Windows uses extensions to identify file types (e.g., .docx for Word, .jpg for images, .exe for programs).

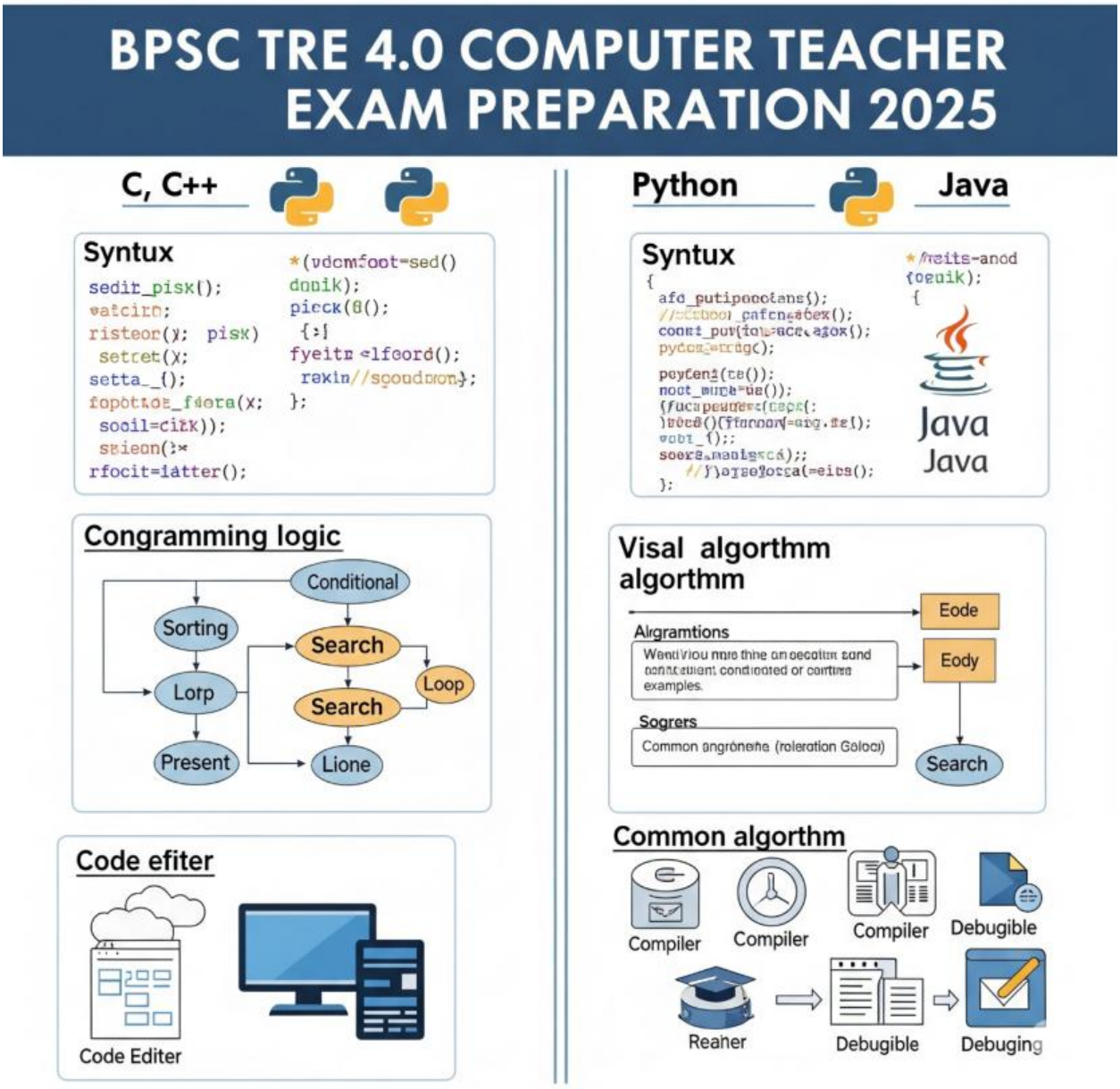
Organizing Files:

Use folders to group related files.
Use meaningful names for easy searching.

6. Differences Between Windows and Linux

Feature	Windows	Linux
Cost	Paid (mostly)	Free and open-source
User Interface	GUI-focused	Both GUI and CLI
Security	Good, but common target for viruses	Strong security, less prone to viruses
Customization	Limited	Highly customizable
Common Users	Home, office, schools	Servers, professionals, programmers

Topic 3: **Programming: Basics of C, C++, Python, Java (Syntax, Logic, Flowcharts, Algorithms)**



1. Introduction to Programming Languages

Programming languages are tools that allow humans to communicate instructions to computers. Four of the most widely used languages for learning and real-world applications are C, C++, Python, and Java. Each has its own syntax, features, and use cases.

2. Basics of C, C++, Python, and Java

A. C Language

Type: Compiled, procedural language.
Use: System programming, embedded systems, operating systems.
Syntax Example:

```c
#include <stdio.h>
int main() {
    printf("Hello, World!");
    return 0;
}
```

Key Points:
Uses functions and procedures.
Variables must be declared with data types.
Case-sensitive.
Uses ; to end statements.

B. C++ Language

Type: Compiled, object-oriented and procedural.
Use: System/software development, games, device drivers, GUI applications.
Syntax Example:

```cpp
#include <iostream>
using namespace std;
int main() {
    cout << "Hello, World!";
    return 0;
}
```

Key Points:
Supports classes, objects, inheritance, polymorphism, encapsulation, abstraction.
Function overloading, operator overloading.
Uses cin and cout for input/output.
Case-sensitive.
File extension: .cpp

C. Python Language

Type: Interpreted, high-level, dynamically typed.
Use: Web development, data science, automation, scripting, AI/ML.
Syntax Example:

```python
print("Hello, World!")
```

Key Points:
Simple, readable syntax.
No need to declare variable types.
Indentation is used to define code blocks.
Huge library support.
File extension: .py

D. Java Language

Type: Compiled and interpreted (via JVM), object-oriented.
Use: Web applications, enterprise software, Android apps.
Syntax Example:

```java
public class Main {
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
```

Key Points:
Everything is inside a class.
Statically typed (variables must be declared).
Platform-independent via Java Virtual Machine (JVM).
Supports inheritance, encapsulation, abstraction, polymorphism.
File extension: .java

3. Syntax and Logic

Syntax: The set of rules that defines the combinations of symbols considered to be correctly structured programs.
Logic: The sequence of instructions that solves a problem.
Example: Add two numbers

C:

```c
int a = 5, b = 3, sum;
sum = a + b;
printf("%d", sum);
```

C++:

```cpp
int a = 5, b = 3, sum;
sum = a + b;
cout << sum;
```

Python:

```python
a = 5
b = 3
sum = a + b
print(sum)
```

Java:

```java
int a = 5, b = 3, sum;
sum = a + b;
System.out.println(sum);
```

4. Flowcharts

A flowchart is a diagram that represents the sequence of steps in a program or process. It uses symbols like:

Oval: Start/End
Parallelogram: Input/Output
Rectangle: Process/Instruction
Diamond: Decision (Yes/No)
Example: Flowchart for Adding Two Numbers

```
text
[Start]
   |
[Input a, b]
   |
[sum = a + b]
   |
[Output sum]
   |
[End]
```

5. Algorithms

An algorithm is a step-by-step procedure to solve a problem.

Example: Algorithm for Adding Two Numbers

Start

Input two numbers (a, b)

Add the numbers: sum = a + b

Output the sum

End

Key Differences Between C, C++, Python, Java

Feature	C	C++	Python	Java
Type	Procedural	Object-oriented & Procedural	Interpreted, Object-based	Object-oriented
Compilation	Compiled	Compiled	Interpreted	Compiled + Interpreted
Syntax	Strict	Strict, with OOP	Simple, readable	Strict, class-based
Memory Management	Manual	Manual	Automatic	Automatic (Garbage Collection)
Use Cases	System, Embedded	System, Apps, Games	Web, Data Science, Scripting	Apps, Web, Mobile
Platform	Platform-dependent	Platform-dependent	Platform-independent	Platform-independent (JVM)
Library Support	Basic	Moderate	Extensive	Extensive

Summary Table: Hello World in All Languages

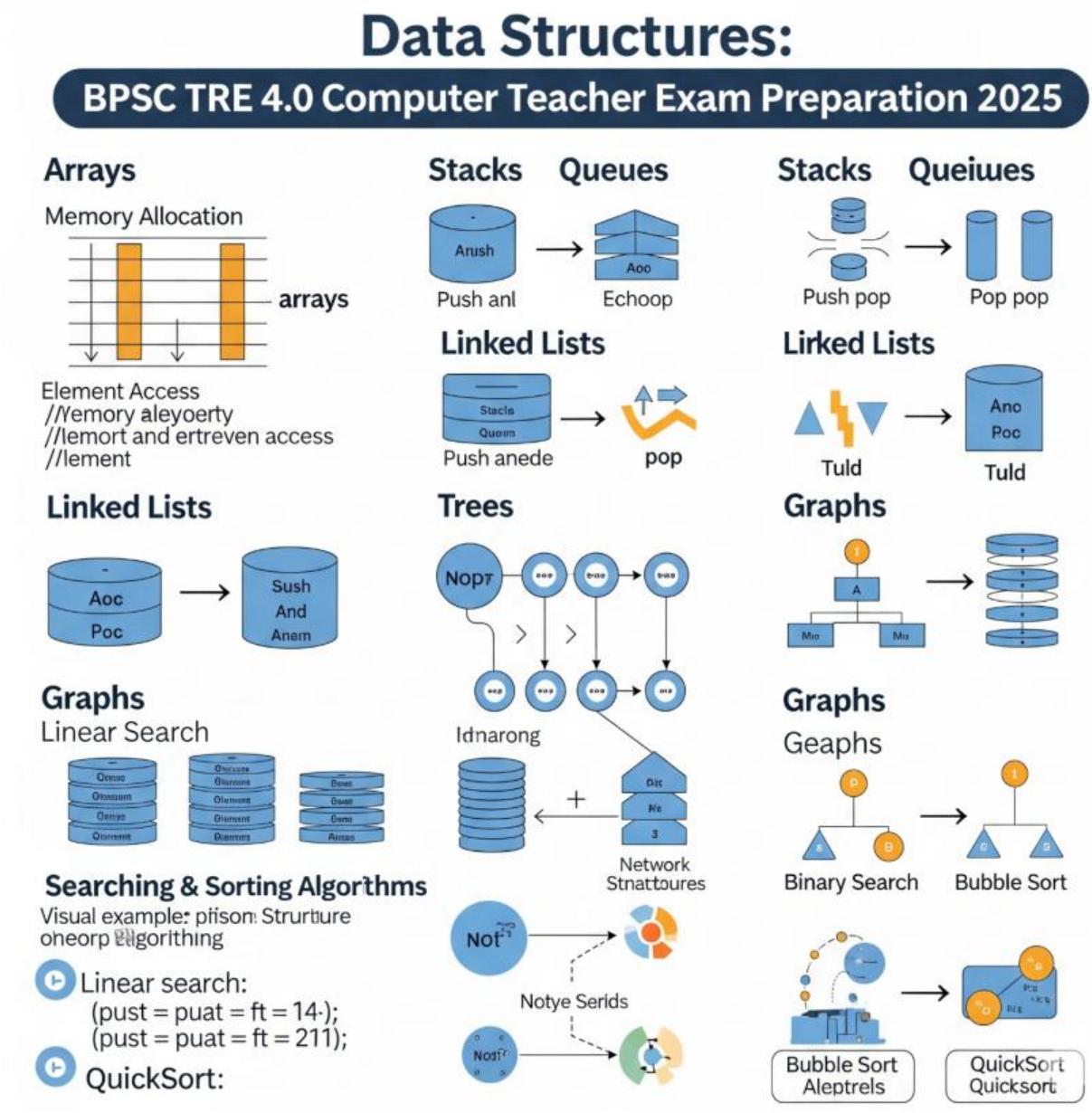
Language	Code Example
C	`printf("Hello, World!");`
C++	`cout << "Hello, World!";`
Python	`print("Hello, World!")`
Java	`System.out.println("Hello, World!");`

8. Conclusion

C is foundational, fast, and close to hardware.
C++ adds object-oriented features and is used for complex systems.
Python is easy, versatile, and great for beginners and rapid development.
Java is robust, platform-independent, and widely used in enterprise and mobile apps.

Understanding syntax, logic, flowcharts, and algorithms in these languages is essential for building a strong programming foundation for the BPSC TRE 4.0 Computer Teacher exam.

Topic 4: Data Structures: Arrays, stacks, queues, linked lists, trees, graphs, searching & sorting.



1. What Are Data Structures?
A data structure is a special way of organizing and storing data in a computer so that it can be used efficiently. Data structures help programmers manage, access, and process data for various tasks and algorithms.

Types:

Linear Data Structures: Elements are arranged in a sequence (e.g., Arrays, Linked Lists, Stacks, Queues).
Non-Linear Data Structures: Elements are arranged in a hierarchical or networked fashion (e.g., Trees, Graphs).

2. Arrays

Definition: An array is a collection of elements, all of the same type, stored in contiguous memory locations. Each element can be accessed using an index.

Properties:
Fixed size.
Fast access by index (random access).
Insertion/deletion is costly except at the end.

Example:
int arr[5] = {1, 2, 3, 4, 5};

Applications: Storing lists of items like marks, names, etc..

3. Linked Lists
Definition: A linked list is a collection of nodes, where each node contains data and a reference (link) to the next node in the sequence.

Types:

Singly Linked List: Each node points to the next node.
Doubly Linked List: Each node points to both the next and previous node.
Circular Linked List: The last node points back to the first node.

Properties:
Dynamic size (can grow/shrink).
Efficient insertions/deletions.
Slower access (need to traverse nodes).

Applications: Implementing stacks, queues, dynamic memory management, browser history (forward/backward buttons).

4. Stacks

Definition: A stack is a linear data structure that follows the Last-In, First-Out (LIFO) principle. Insertion and deletion happen only at the top.

Operations:
Push: Add an item to the top.
Pop: Remove the top item.
Peek/Top: View the top item without removing.

Applications: Function call management, undo operations, expression evaluation, backtracking.

5. Queues
Definition: A queue is a linear data structure that follows the First-In, First-Out (FIFO) principle. Insertion happens at the rear, deletion at the front.

Operations:
Enqueue: Add an item at the rear.
Dequeue: Remove an item from the front.

Types:
Simple Queue
Circular Queue
Priority Queue

Applications: Printer task scheduling, CPU task scheduling, call center systems.

6. Trees
Definition: A tree is a non-linear, hierarchical data structure consisting of nodes, with a single root node and sub-nodes (children).

Properties:

Root: The top node.
Leaf: Node with no children.

Parent/Child: Relationship between nodes.

Types:

Binary Tree: Each node has at most two children.
Binary Search Tree (BST): Left child < parent < right child.

Applications: File systems, databases, searching and sorting, hierarchical data representation.

7. Graphs
Definition: A graph is a collection of nodes (vertices) connected by edges. It can represent networks and relationships.

Types:

Directed Graph: Edges have direction.
Undirected Graph: Edges have no direction.
Weighted Graph: Edges have weights (costs).

Representation:
Adjacency Matrix: 2D array.
Adjacency List: List of lists or linked lists.

Applications: Social networks, maps, network routing, web page links.

8. Searching Algorithms

Linear Search: Check each element one by one.
Time Complexity: O(n)
Binary Search: Repeatedly divide sorted array and search.
Time Complexity: O(log n)

Note: Works only on sorted data.

9. Sorting Algorithms

Bubble Sort: Repeatedly swap adjacent elements if they are in the wrong order.
Selection Sort: Select the smallest/largest element and place it at the correct position.
Insertion Sort: Build the sorted array one item at a time.
Quick Sort, Merge Sort: Advanced, faster algorithms for large data sets.

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.

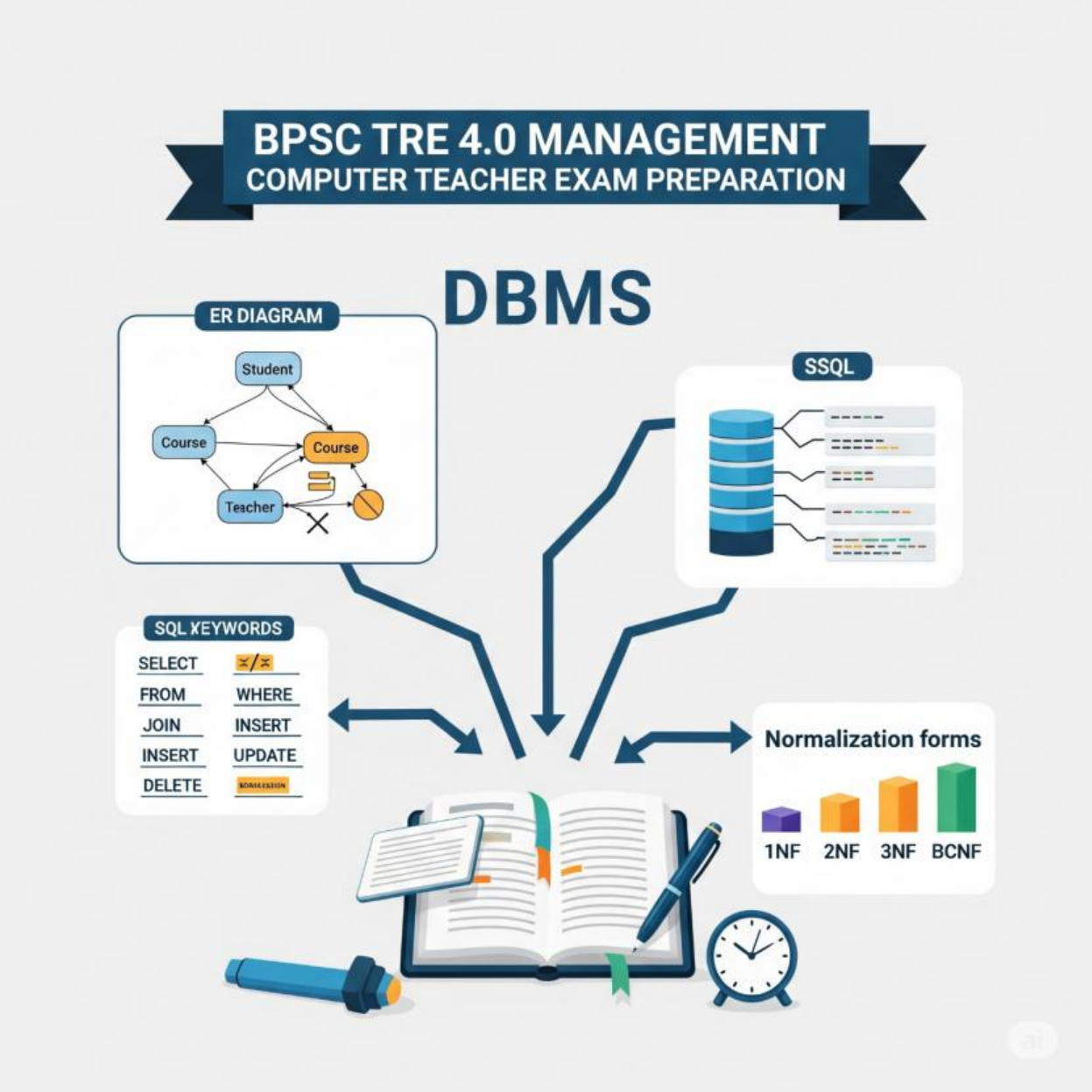
Summary Table

Data Structure	Linear/Non-Linear	Key Feature	Example Use
Array	Linear	Fast access by index	Storing marks, lists
Linked List	Linear	Dynamic size, easy insert	Browser history, memory mgmt
Stack	Linear	LIFO, one-end operations	Undo, function calls
Queue	Linear	FIFO, two-end operations	Print queue, task scheduling
Tree	Non-Linear	Hierarchical relationships	File systems, databases
Graph	Non-Linear	Networked relationships	Social networks, maps

Why Are Data Structures Important?

They help organize data efficiently.
Enable fast searching, insertion, and deletion.
Essential for writing optimized programs and solving real-world problems

Topic 5: Database Management: DBMS concepts, SQL basics, ER diagrams, normalization.



1. DBMS Concepts

What is a DBMS?
A Database Management System (DBMS) is software that helps you create, store, organize, retrieve, and manage data in databases. It acts as an interface between users/applications and the actual data, ensuring data is consistently and securely handled.

Key Features and Functions:
Data Storage & Retrieval: Stores data in tables (rows and columns) and allows quick access and manipulation.
Data Integrity: Maintains accuracy and consistency of data.
Concurrency Control: Supports multiple users accessing data simultaneously without conflict.
Security: Restricts unauthorized access, provides user roles and permissions.
Backup & Recovery: Allows data backup and restores data in case of failure.
Data Independence: Applications are insulated from changes in data structure.
ACID Properties: Ensures transactions are Atomic, Consistent, Isolated, and Durable for reliability.

DBMS Components:

Storage Engine: Manages data storage on disk.
Query Processor: Interprets and executes database queries.
Database Schema: Defines the logical structure of the database.
Metadata Catalog: Stores information about database structure (tables, columns, relationships).
User Interface: Provides ways for users to interact with the database (command line, GUI, API).

2. SQL Basics

SQL (Structured Query Language) is the standard language for interacting with relational databases. It is used to create, modify, manage, and query data.

Main Categories of SQL Commands:
Data Definition Language (DDL): Defines database structure.
CREATE TABLE, ALTER TABLE, DROP TABLE

Data Manipulation Language (DML): Handles data within tables.
SELECT, INSERT, UPDATE, DELETE

Data Control Language (DCL): Controls access to data.
GRANT, REVOKE

Transaction Control Language (TCL): Manages transactions.
COMMIT, ROLLBACK, SAVEPOINT

Common SQL Statements:

Create a Table:

```sql
CREATE TABLE Students (
    ID INT PRIMARY KEY,
    Name VARCHAR(50),
    Marks INT
);
```

Insert Data:

```sql
INSERT INTO Students (ID, Name, Marks) VALUES (1, 'Amit', 85);
```

Select Data:

```sql
SELECT * FROM Students;
```

Update Data:

```sql
UPDATE Students SET Marks = 90 WHERE ID = 1;
```

Delete Data:

```sql
DELETE FROM Students WHERE ID = 1;
```

3. ER Diagrams (Entity-Relationship Diagrams)

ER Diagrams are visual representations of the data and their relationships in a database.

Basic Components:

- Entity: Object or thing in the real world (e.g., Student, Course).
- Attribute: Property of an entity (e.g., Name, RollNo).
- Relationship: Association between entities (e.g., "enrolls" between Student and Course).

Symbols Used:

- Rectangle: Entity
- Ellipse: Attribute
- Diamond: Relationship
- Line: Connects attributes to entities and entities to relationships

Example:

- Entities: Student, Course
- Relationship: Student "enrolls" in Course

```text
 [Student]---(enrolls)---[Course]
     |                       |
  [Name]                  [Title]
  [RollNo]                [Code]
```

ER diagrams help in database design by clearly showing how data is structured and related.

4. Normalization

Normalization is a process to organize data in a database to reduce redundancy and improve data integrity.

Goals of Normalization:

- Eliminate duplicate data (redundancy)
- Ensure data dependencies make sense

Normal Forms:

1st Normal Form (1NF): No repeating groups or arrays; each cell contains a single value.

2nd Normal Form (2NF): 1NF + all non-key attributes are fully dependent on the primary key.
3rd Normal Form (3NF): 2NF + no transitive dependency (non-key attribute depends only on the primary key).

Example:
Suppose a table stores student info and their courses:

StudentID	Name	Course1	Course2
1	Amit	Math	Science

After 1NF:

StudentID	Name	Course
1	Amit	Math
1	Amit	Science

After 2NF and 3NF: Further split tables to ensure all attributes depend only on the primary key.

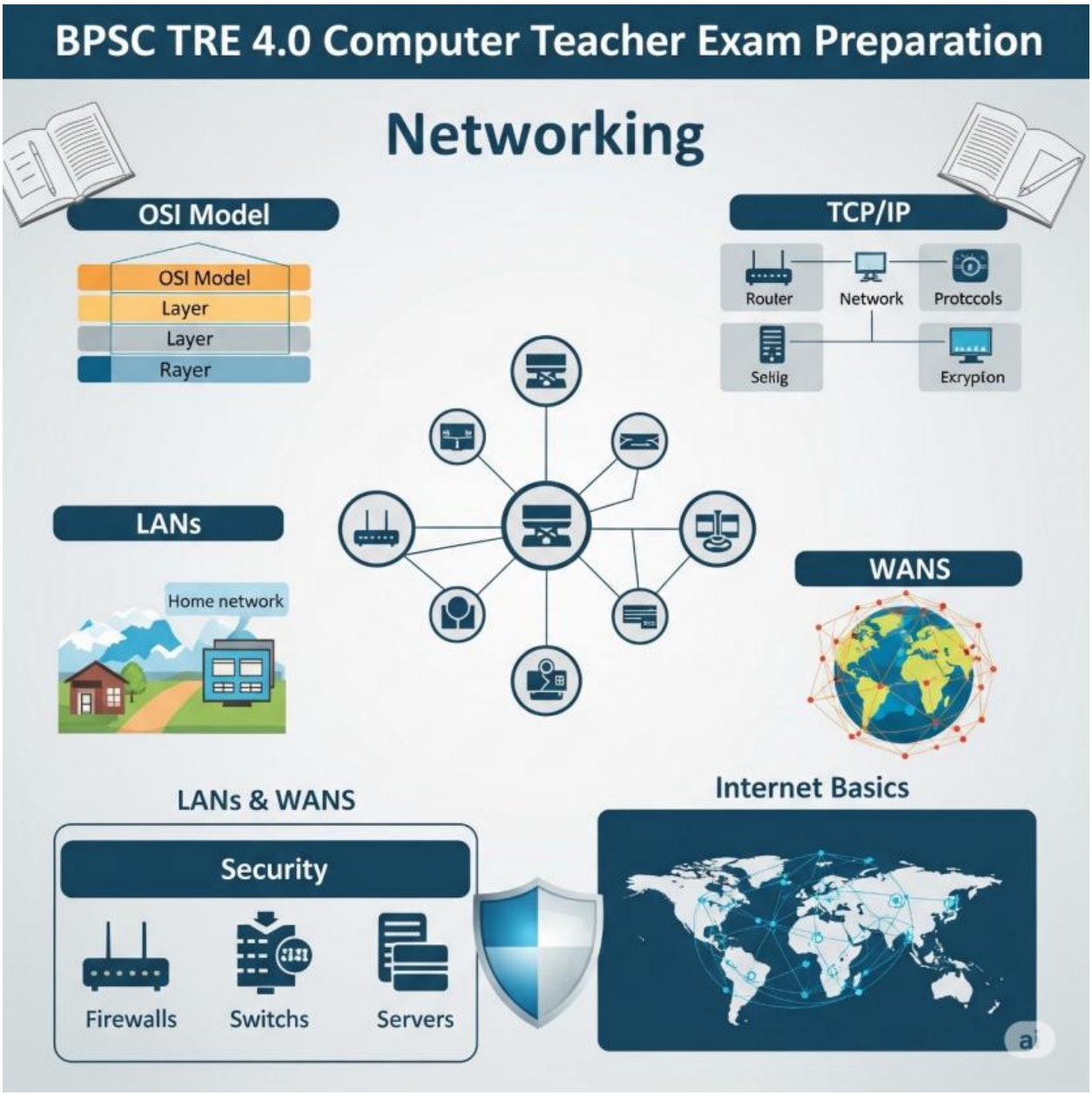
Summary Table

Concept	Description
DBMS	Software to manage databases, ensure security, integrity, and multi-user access
SQL	Language for creating, modifying, querying databases
ER Diagram	Visual tool for database design, showing entities and relationships
Normalization	Steps to organize data, remove redundancy, and ensure integrity

In summary:

A DBMS provides a secure, structured way to store and manage data. SQL is the language used to interact with these systems. ER diagrams help design the database structure, and normalization ensures the data is organized efficiently and without unnecessary duplication

Topic 6: Networking: OSI model, TCP/IP, LAN/WAN, Internet basics, network devices, security.



1. Introduction to Computer Networks

A computer network is a collection of connected computers and devices that share resources and information. Networking allows communication, data sharing, and access to the internet.

2. OSI Model (Open Systems Interconnection Model)

The **OSI model** is a theoretical framework that standardizes the functions of a network into seven layers. Each layer serves a specific purpose in the communication process.

Seven Layers of the OSI Model:

1. **Physical Layer:**
   Deals with the physical connection (cables, switches, signals).
   Transmits raw bits over the medium.

2. **Data Link Layer:**
   Ensures reliable node-to-node data transfer.
   Handles MAC addressing and error detection (e.g., Ethernet).

3. **Network Layer:**
   Manages routing of data (logical addressing, e.g., IP addresses).
   Responsible for packet forwarding.

4. **Transport Layer:**
   Provides reliable data transfer (e.g., TCP, UDP).
   Handles error correction and flow control.

5. **Session Layer:**
   Manages sessions (connections) between applications.

6. **Presentation Layer:**
   Translates data formats, encrypts/decrypts, compresses data.

7. **Application Layer:**
   Closest to the user; provides network services (e.g., HTTP, FTP, SMTP).

Purpose:

The OSI model helps in understanding, designing, and troubleshooting networks by dividing tasks into manageable layers.

3. TCP/IP Model

The **TCP/IP model** is the practical framework used for real-world networking and the internet. It has four layers:

1. **Application Layer:**
   Combines OSI's Application, Presentation, and Session layers.
   Protocols: HTTP, FTP, SMTP, DNS.

2. **Transport Layer:**
   Provides end-to-end communication.
   Protocols: TCP (reliable), UDP (faster, less reliable).

3. **Internet Layer:**
   Handles logical addressing and routing (IP protocol).
   Protocols: IP, ICMP.

4. **Network Access Layer:**
   Combines OSI's Data Link and Physical layers.
   Deals with hardware addressing and media access.

Key Point:
TCP/IP is the backbone of the internet; OSI is mainly used for conceptual understanding and troubleshooting.

5. LAN, WAN, and Other Networks

LAN (Local Area Network):

Covers a small area (e.g., office, school).
High speed, low error rate.
Example: School computer lab.

WAN (Wide Area Network):

Covers a large area (e.g., cities, countries).
Connects multiple LANs using routers and leased lines.
Example: The Internet.

MAN (Metropolitan Area Network):

Covers a city or campus.
Larger than LAN, smaller than WAN.

6. Internet Basics

Internet:

A global network connecting millions of computers.
Uses TCP/IP protocols for communication.

World Wide Web (WWW):

A service on the internet for accessing web pages via browsers.

IP Address:

Unique identifier for devices on a network.

Protocols:

Set of rules for communication (e.g., HTTP, FTP, SMTP, DNS).

7. Network Devices

Common Network Devices and Their Functions:

Device	Function
Hub	Connects multiple computers in a network; broadcasts data to all devices.
Switch	Connects devices; forwards data only to the intended device.
Router	Connects different networks (e.g., LAN to Internet); routes data packets.
Bridge	Connects and filters traffic between two network segments.
Gateway	Connects networks with different protocols; translates data formats.
Repeater	Amplifies signals to extend network range.
Modem	Converts digital data to analog for transmission over phone lines.
Access Point	Allows wireless devices to connect to a wired network.
Load Balancer	Distributes network traffic across multiple servers.

7. Network Security

Why is Security Important?

To protect data and devices from unauthorized access, viruses, and cyberattacks.

Key Security Concepts:

Firewalls:

Hardware/software that filters incoming and outgoing network traffic.

Blocks unauthorized access while permitting legitimate communication.

Antivirus Software:

Detects and removes malicious software (malware, viruses).

Backup and Restore:
Regularly saving data copies for recovery after failures or attacks.

Authentication:
Verifying user identity before granting network access.

Encryption:
Converting data into unreadable code to protect privacy.

Ethical Hacking:
Testing networks for vulnerabilities to improve security.

8. Summary Table: OSI vs TCP/IP Model

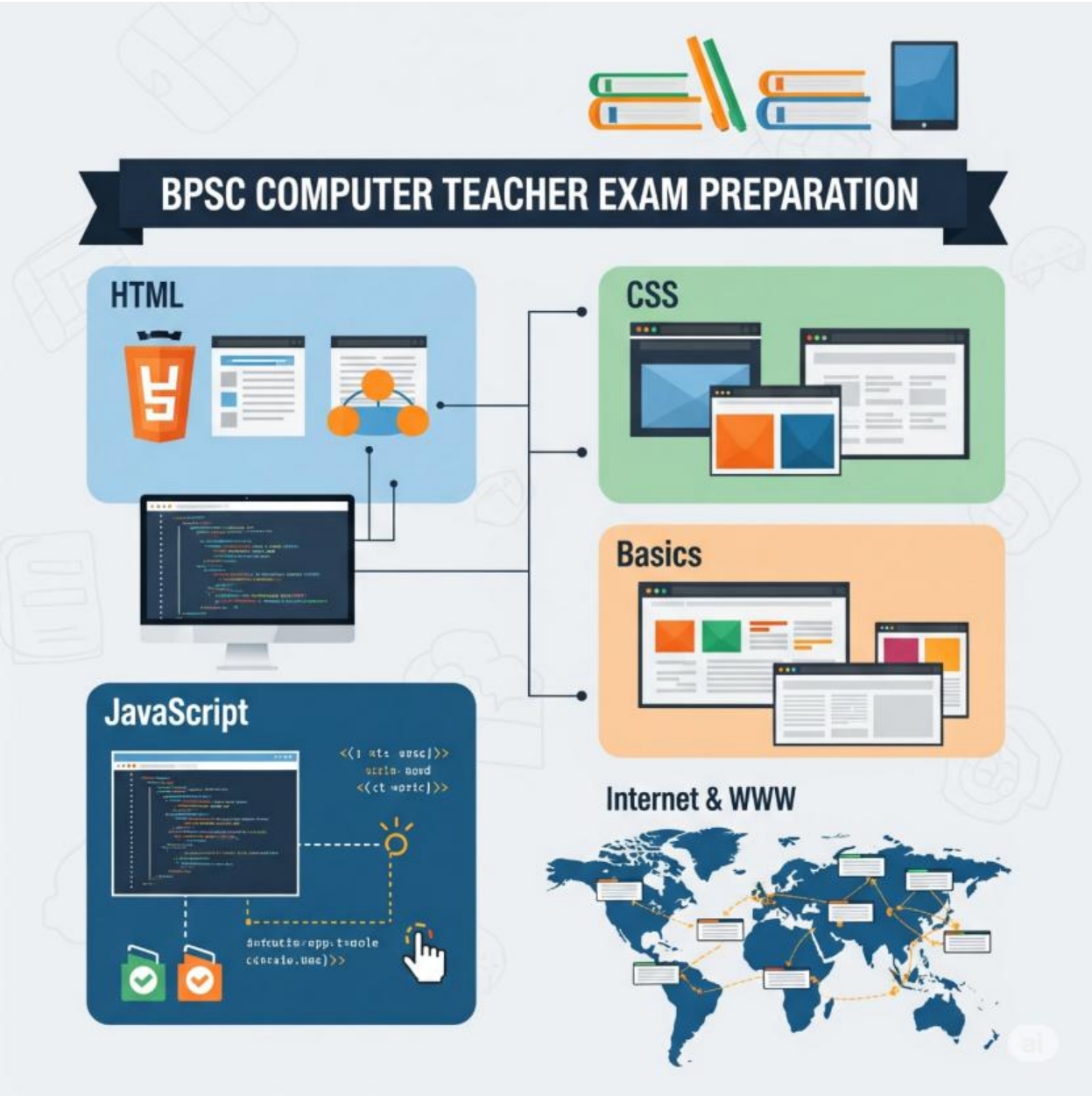
OSI Model (7 Layers)	TCP/IP Model (4 Layers)
Application	Application
Presentation	
Session	
Transport	Transport
Network	Internet
Data Link	Network Access
Physical	

9. Key Points for BPSC TRE 4.0 Exam

Understand the purpose and functions of each OSI and TCP/IP layer.
Know the differences between LAN, WAN, and MAN.
Be able to identify and explain the use of common network devices.
Grasp basic internet concepts and common protocols.

Remember essential security practices and devices.

Topic 7: Web Technologies: HTML, CSS, Basics of JavaScript, Internet and WWW



1. Introduction to Web Technologies

Web technologies are the tools and languages that power the World Wide Web (WWW). They allow us to create, design, and interact with websites and web applications. The three core technologies are **HTML, CSS, and JavaScript.** Understanding these, along with Internet and WWW basics, is essential for any computer teacher.

2. Internet and World Wide Web (WWW)

- **Internet** is a global network connecting millions of computers for sharing information, resources, and communication.
- **WWW (World Wide Web)** is a service on the Internet that provides access to web pages using web browsers (like Chrome, Firefox, Safari).
- **Web Browser:** Software to access and view websites (e.g., Chrome, Firefox, Edge).
- **Web Server:** A computer that stores and serves web pages to users.
- **URL (Uniform Resource Locator):** The address used to access a web page (e.g., https://www.bpsc.bih.nic.in).
- **HTTP/HTTPS:** Protocols used to transfer web data; HTTPS is the secure version.
- **Search Engine:** A tool to find information on the web (e.g., Google, Bing).

1. HTML (HyperText Markup Language)

HTML is the standard language for creating web pages and web applications.
Structure: HTML uses tags to mark up content. Tags are enclosed in angle brackets < >.
Basic Structure of an HTML Document:

```xml
<!DOCTYPE html>
<html>
  <head>
    <title>My Web Page</title>
  </head>
  <body>
    <h1>Welcome to My Website</h1>
    <p>This is a paragraph.</p>
  </body>
</html>
```

Common HTML Tags:

<html>: Root element
<head>: Contains meta information, title, links to CSS/JS
<title>: Title of the page (shown in browser tab)
<body>: Main content of the page
<h1> to <h6>: Headings
<p>: Paragraph
<a href="URL">: Hyperlink
<img src="image.jpg">: Image
, <ol>, <li>: Lists (unordered, ordered, list item)
<table>, <tr>, <td>, <th>: Tables

Attributes: Provide additional information about tags (e.g., src, href, alt).

2. CSS (Cascading Style Sheets)

- CSS is used to style and layout web pages (colors, fonts, spacing, positioning).
- **How CSS Works:** CSS can be included in three ways:

Inline: Directly in the HTML element (not recommended for large projects)

```xml
<p style="color:blue;">This is blue text.</p>
```

Internal: Inside a `<style>` tag in the `<head>`

```xml
<style>
  p { color: red; }
</style>
```

External: In a separate `.css` file linked to HTML

```xml
<link rel="stylesheet" href="style.css">
```

Basic Syntax:

```css
selector {
  property: value;
}
```

Example:

```css
body {
  background-color: #f0f0f0;
  font-family: Arial, sans-serif;
}
h1 {
  color: green;
  text-align: center;
}
```

- **Selectors:** Target HTML elements (e.g., `h1`, `.class`, `#id`).

5. Basics of JavaScript

- **JavaScript** is a scripting language that makes web pages interactive and dynamic.
- **Uses:** Form validation, animations, dynamic content, responding to user actions.
-

How to Use JavaScript:

Inline: Inside HTML elements (not recommended for large projects)

```xml
<button onclick="alert('Hello!')">Click Me</button>
```

Internal: Inside a `<script>` tag in HTML

```xml
<script>
  alert('Welcome to my website!');
</script>
```

External: In a separate `.js` file linked to HTML

```xml
<script src="script.js"></script>
```

Basic Syntax:

```javascript
// This is a comment
var name = "BPSC";
alert("Hello " + name);
```

- **Variables:** `var`, `let`, `const`

Functions:

```javascript
function greet() {
  alert("Hello, World!");
}
```

- **Events:** Actions like click, mouseover, etc.

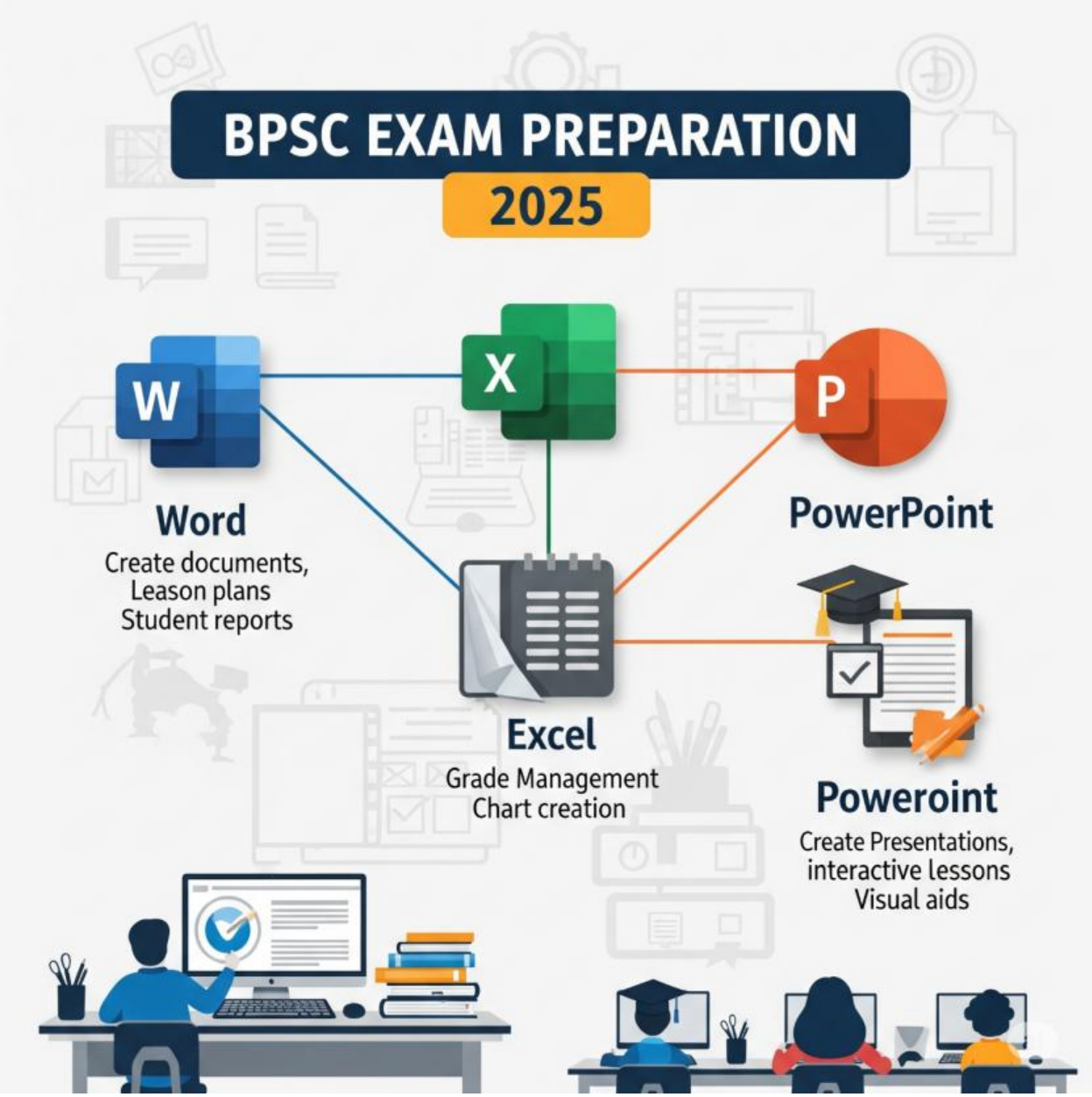
6. How HTML, CSS, and JavaScript Work Together

- HTML provides the structure.
- CSS provides the style (look and feel).
- JavaScript provides interactivity (behavior).
- All three are essential for modern web development and are asked in BPSC TRE exams.

7. Internet and Web Concepts for Teachers

- **Client-Server Model:** The browser (client) requests web pages from the server.
- **Static vs. Dynamic Web Pages:** Static pages use only HTML/CSS; dynamic pages use JavaScript and server-side scripting.
- **Web Publishing:** The process of uploading web pages to a web server so they are accessible on the Internet.

Topic 8: MS Office Suite: Word, Excel, PowerPoint, and Practical Applications in Education



1. Introduction to MS Office Suite

Microsoft Office Suite is a collection of powerful productivity tools widely used in schools, colleges, offices, and homes. The main applications are:

- **Word:** For creating and editing documents.
- **Excel:** For working with spreadsheets and data analysis.
- **PowerPoint:** For making presentations.
- **Outlook:** For email and scheduling.
- **OneNote, Access, Publisher:** For note-taking, database management, and publishing.
- **Modern versions are available as Microsoft 365** (cloud-based, subscription) or as standalone Office 2019/2021.

2. Microsoft Word

Purpose: Word processing (letters, reports, assignments, notices).

Key Features:

- **Document Creation:** Type, edit, and format text.
- **Formatting:** Change font, size, color, alignment, and spacing.
- **Styles & Templates:** Use pre-designed templates for resumes, letters, etc.
- **Tables & Charts:** Insert tables, charts, and SmartArt for data organization.
- **Mail Merge:** Send personalized letters/emails to multiple recipients.
- **Collaboration:** Multiple users can edit documents in real time (with OneDrive).
- **Review Tools:** Spell check, grammar check, comments, and track changes.
- **Accessibility:** Immersive Reader, Dictation, and Accessibility Checker for inclusive documents.

Educational Uses:

Preparing assignments, question papers, and certificates.
Creating newsletters, circulars, and official letters.
Collaborative editing for group projects.

3. Microsoft Excel

Purpose: Spreadsheet management, calculations, and data analysis.

Key Features:

- **Worksheets:** Organize data in rows and columns (cells).
- **Formulas & Functions:** Perform calculations (SUM, AVERAGE, IF, VLOOKUP).
- **Charts & Graphs:** Visualize data using bar, line, pie charts, etc.
- **Data Analysis:** Use PivotTables, filters, and conditional formatting for insights.
- **Templates:** Ready-made templates for attendance, marksheets, budgets.
- **Automation:** Use Macros to automate repetitive tasks.
- **Collaboration:** Share and co-edit files online.

Educational Uses:

Maintaining student attendance and marksheets.
Analyzing exam results and generating reports.
Creating timetables and schedules.
Teaching basic data analysis and graphing skills.

4. Microsoft PowerPoint

Purpose: Creating and delivering presentations.

Key Features:

- **Slides:** Organize content into slides for step-by-step presentation.
- **Design Tools:** Use themes, templates, and layouts for professional look.
- **Multimedia:** Insert images, audio, video, and animations.
- **Transitions & Animations:** Add movement to slides and elements.
- **Presenter View:** View notes and upcoming slides while presenting.
- **Collaboration:** Multiple users can build and edit presentations together.
- **Accessibility:** Dictation, voice commands, and improved PDF exports for accessibility.

Educational Uses:

Teaching lessons with visual aids.
Student projects and seminar presentations.
Creating interactive quizzes and e-learning content.
Demonstrating concepts with diagrams and animations.

5. Practical Applications in Education

- **Assignments & Reports:** Word is used for writing and formatting assignments, reports, and study materials.
- **Data Management:** Excel helps track attendance, grades, and analyze student performance.
- **Classroom Presentations:** PowerPoint makes lessons engaging with visuals, animations, and multimedia.
- **Collaboration:** Office 365/OneDrive allows teachers and students to work together on documents and presentations in real time.
- **Accessibility:** New features support inclusive education, making materials usable for all students.
- **Assessment:** Excel can generate automatic result sheets and analyze class performance.
- **Communication:** Word and PowerPoint help in preparing notices, newsletters, and circulars for parents and students.

6. Tips and Best Practices (2025 Updates)

- **Use Templates:** Save time with pre-made templates for common educational tasks.
- **Leverage Accessibility Tools:** Use Immersive Reader, Accessibility Checker, and alt text for inclusive documents.

- **Integrate Cloud Storage:** Save and share files via OneDrive for easy access anywhere.
- **Collaborate in Real Time:** Use co-authoring features for group work and peer review.
- **Automate Tasks:** Use Macros in Excel to speed up repetitive processes.
- **Stay Updated:** Microsoft 365 provides regular updates with new features and security enhancements.

7. Summary Table

Application	Main Use in Education	Key Features
Word	Documents, assignments, letters	Formatting, tables, mail merge, accessibility
Excel	Data analysis, marks, attendance	Formulas, charts, PivotTables, conditional formatting
PowerPoint	Presentations, lessons, projects	Slides, multimedia, transitions, collaboration

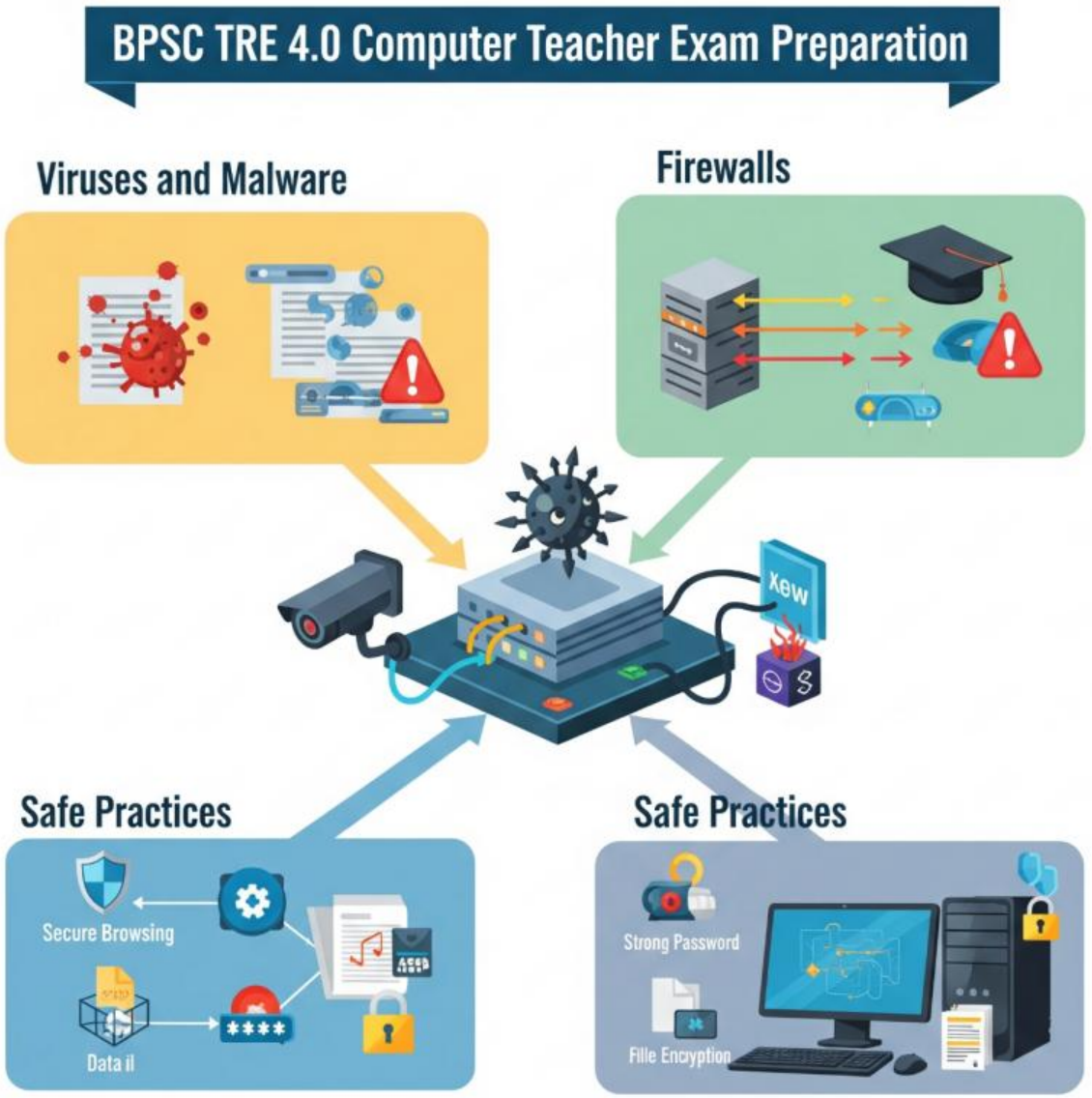
Practical Applications in Teaching

Application	Practical Use in Teaching	Example Activities
Word	Lesson plans, worksheets, assignments	Create tests, handouts, feedback forms
Excel	Grades, attendance, data analysis	Track marks, analyze trends, make charts
PowerPoint	Visual lessons, interactive quizzes	Present topics, create student presentations

8. Conclusion

MS Office Suite is essential for modern teaching and learning. Mastering Word, Excel, and PowerPoint helps teachers create professional documents, analyze data, and deliver engaging lessons, while also preparing students for future academic and professional needs.

Topic 9: Computer Security: Viruses, Malware, Firewalls, Safe Practices"



1. Introduction to Computer Security

Computer security refers to the protection of computer systems and data from **theft, damage, unauthorized access, and other cyber threats.** It is essential for safeguarding personal, educational, and organizational information.

2. Viruses and Malware

A. Computer Viruses

- **Definition:** A computer virus is a malicious program that attaches itself to other programs or files and spreads from one computer to another, often causing harm.
- **How Viruses Spread:** Through infected email attachments, downloads, USB drives, or malicious websites.
- **Effects:** Can corrupt files, steal data, slow down systems, or make computers unusable.

B. Malware

Definition: "Malware" stands for "malicious software" and is a broad term for any software designed to harm, exploit, or illegally access computers or networks.

Types of Malware:

- **Virus:** Attaches to files and replicates.
- **Worm:** Spreads independently across networks.
- **Trojan Horse:** Disguises as legitimate software but harms when executed.
- **Spyware:** Secretly monitors user activity and collects information.
- **Adware:** Displays unwanted advertisements.
- **Ransomware:** Locks data and demands payment for release.
- **Rootkit:** Hides malicious activity from detection.
- **Keylogger:** Records keystrokes to steal passwords and data.

3. Firewalls

Definition: A firewall is a security device (hardware or software) that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

Types:

Software Firewall: Installed on individual computers (e.g., Windows Firewall).
Hardware Firewall: A physical device placed between the network and gateway.

Functions:

- **Blocks unauthorized access to or from a private network.**
- **Filters harmful traffic and prevents cyberattacks.**
- **Can be configured to allow or deny specific traffic.**

4. Safe Practices for Computer Use

A. Preventing Virus and Malware Infections

- **Install Antivirus Software:** Use reputable antivirus and keep it updated.
- **Regular Scans:** Scan your computer regularly for threats.
- **Update Software:** Keep your operating system and all applications up to date with the latest security patches.
- **Be Cautious with Email Attachments:** Do not open attachments or click links from unknown or suspicious sources.
- **Download from Trusted Sources:** Only install software from official websites or trusted vendors.
- **Use Strong Passwords:** Create complex passwords and change them regularly.
- **Backup Data:** Regularly backup important files to external drives or cloud storage.
- **Avoid Pirated Software:** Pirated programs often contain malware.

B. Safe Internet Practices

- **Use Secure Websites:** Look for "https://" in the address bar.
- **Do Not Share Personal Information:** Avoid sharing sensitive data on public or untrusted sites.
- **Be Wary of Pop-Ups and Ads:** Do not click on suspicious advertisements or pop-ups.
- **Logout After Use:** Always log out from online accounts after use, especially on shared computers.
- **Enable Two-Factor Authentication:** Adds an extra layer of security for accounts.

C. Physical Security

- **Lock Your Device:** Use passwords or PINs to lock computers and devices.
- **Restrict Physical Access:** Prevent unauthorized people from using your computer.

5. Importance of Computer Security in Education

- **Protects Student and Staff Data:** Prevents unauthorized access to personal and academic records.
- **Ensures Safe Learning Environment:** Shields school computers and networks from cyber threats.
- **Promotes Responsible Digital Citizenship:** Teaches students about safe and ethical use of technology.

6. Summary Table

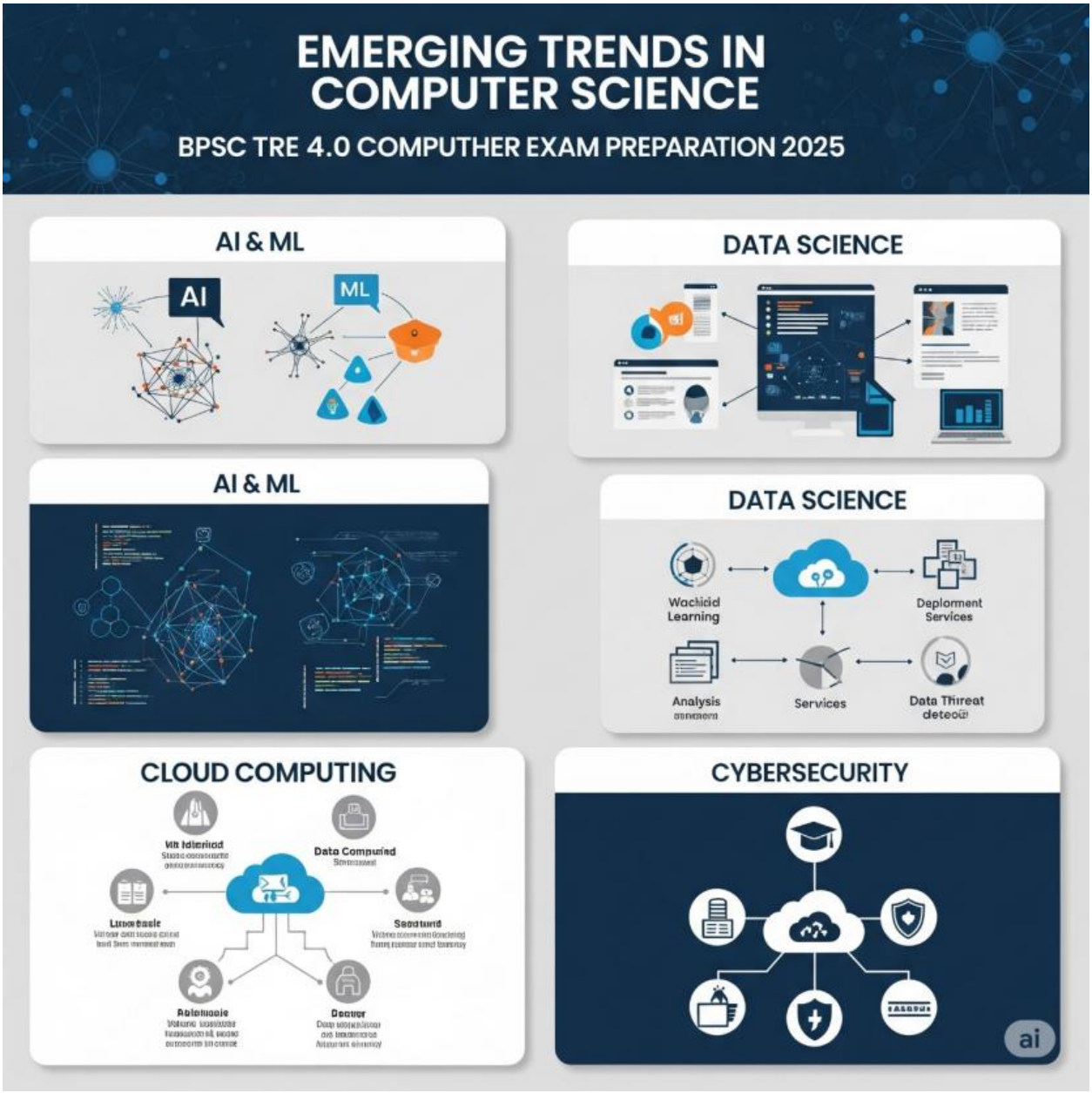
Concept	Description/Example

Virus	Infects files, spreads by attaching to programs
Malware	Includes viruses, worms, trojans, spyware, ransomware, etc.
Firewall	Blocks unauthorized access, filters network traffic
Safe Practices	Antivirus, updates, strong passwords, cautious browsing

7. Key Points

Know definitions and types of malware and viruses.
Understand how firewalls work and their types.
Learn and apply safe computing and internet practices.
Emphasize the importance of security in educational settings.

Topic 10: ICT in Education: Role of computers in teaching, e-learning tools, digital classroom management



1. Role of Computers in Teaching

A. Transforming the Teaching-Learning Process

- **Interactive Learning:** Computers make lessons more engaging through multimedia presentations, simulations, and educational games.
- **Access to Information:** Teachers and students can access a vast range of information, e-books, and online resources.
- **Personalized Learning:** Adaptive software tailors content to individual student needs and learning speeds.
- **Efficient Assessment:** Digital tools allow for quick quizzes, instant feedback, and automated grading.
- **Collaboration:** Computers enable group projects and peer learning through shared documents and online forums.
- **Distance & Blended Learning:** Computers support both remote (online) and blended (online + classroom) learning models.

B. Practical Uses in Schools

- Creating lesson plans, worksheets, and tests.
- Demonstrating concepts using animations and videos.
- Maintaining student records and grades.
- Communicating with parents and students via email or online portals.

2. E-Learning Tools

E-learning tools are software and platforms that support digital teaching and learning. They make education more accessible, engaging, and effective.

A. Learning Management Systems (LMS)

Definition: Centralized platforms for creating, delivering, and managing instructional content.
Examples: Google Classroom, Canvas, Schoology.

Features:

Assignment distribution and submission.
Gradebooks for tracking student progress.
Communication tools (announcements, messaging, discussion boards).
Resource sharing (lesson plans, videos, readings).
Accessibility for in-person, hybrid, and online learning.

B. Classroom Response Systems

Definition: Tools for real-time student feedback.
Examples: Kahoot!, Quizlet, Socrative.
Benefits: Increases engagement, provides instant assessment, and helps tailor instruction.

C. Collaboration Tools

Definition: Enable teamwork and communication among students and teachers.
Examples: Google Workspace (Docs, Sheets, Slides), Microsoft Teams, Padlet.

Features: Real-time document editing, group workspaces, file sharing, and integration with other tools.

D. Digital Assessment Tools

Definition: Platforms for creating and grading quizzes, tests, and assignments.
Examples: Edulastic (now Pear Assessment), Formative, Quizizz.
Benefits: Automated grading, detailed analytics, and personalized feedback.

E. Behavior Management Tools

Definition: Track and encourage positive student behavior.
Examples: ClassDojo, Kickboard, LiveSchool.
Features: Behavior tracking, communication with parents, reward systems.

F. Interactive Whiteboards and Screens

Definition: Digital boards for drawing, presenting, and interacting with content.
Examples: Classroomscreen, Gynzy.
Features: Timers, group makers, polls, drawing tools, and more.

G. Assistive Technology

Definition: Tools for students with special needs.
Examples: Livescribe smartpens, screen readers.
Features: Converts handwriting to digital text, audio recording, and playback.

3. Digital Classroom Management

Digital classroom management involves using technology to organize, monitor, and enhance the learning environment.

A. Key Digital Management Tools

LMS (Google Classroom, Canvas): Centralizes assignments, grades, and communication.
Mobile Device Management (MDM): Controls student device usage, restricts apps, and monitors activity.
Classroom Response and Behavior Tools: Monitor participation and encourage positive actions.

B. Benefits

Efficiency: Automates routine tasks (grading, attendance, resource sharing).
Transparency: Keeps students and parents informed.
Accessibility: 24/7 access to materials and grades.
Engagement: Interactive lessons and instant feedback.

Safety: Monitors digital behavior and ensures a secure online environment.

C. Best Practices

Set clear digital rules and expectations.
Use digital tools consistently for assignments and communication.
Encourage student participation through polls, quizzes, and collaborative projects.
Monitor device and internet usage to prevent distractions.
Foster a positive digital culture—respect, responsibility, and safety online.

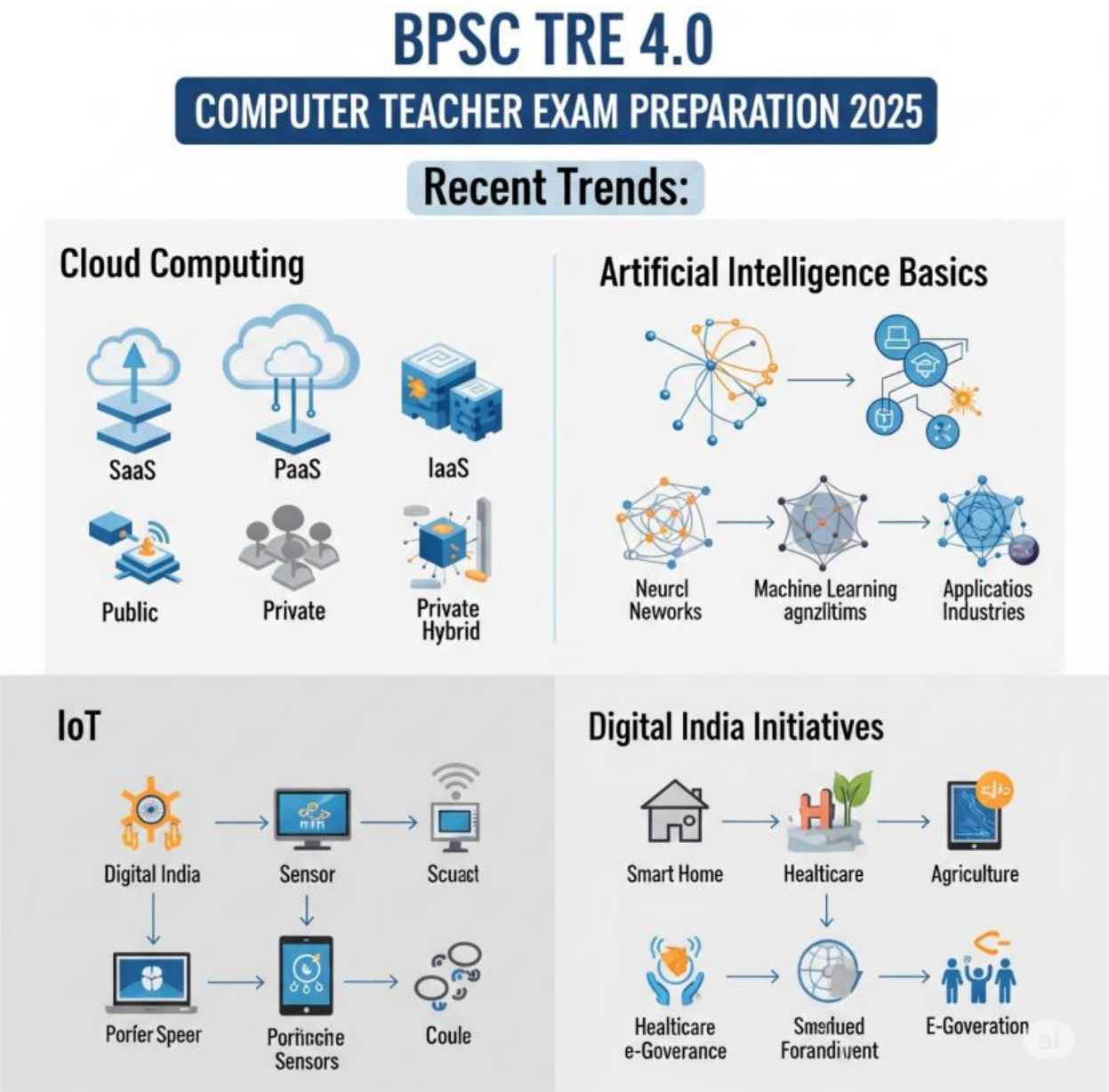
3. **Summary Table:** Key ICT Tools in Education

Tool Type	Examples	Main Use
LMS	Google Classroom, Canvas	Assignment management, grades, communication
Collaboration Tools	Google Docs, Teams, Padlet	Group work, real-time editing
Response Systems	Kahoot!, Quizizz, Socrative	Instant feedback, quizzes
Assessment Tools	Edulastic, Formative	Online tests, analytics
Behavior Tools	ClassDojo, LiveSchool	Track/reward behavior, parent updates
Interactive Boards	Classroomscreen, Gynzy	Visual lessons, engagement
MDM	Trio MDM, Google Admin Console	Device monitoring, security

5. Conclusion

ICT in education has revolutionized teaching and learning by making classrooms more interactive, inclusive, and efficient. Teachers equipped with digital tools can enhance lesson delivery, student engagement, assessment, and classroom management. For **BPSC TRE 4.0, focus** on understanding how these tools work and their practical benefits in real classroom scenarios.

Topic 11: Recent Trends: Cloud Computing, Artificial Intelligence Basics, IoT, Digital India Initiatives



1. Cloud Computing

A. Definition and Overview

Cloud computing is the delivery of computing services—including **servers, storage, databases, networking, software, analytics, and intelligence**—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

B. Key Trends in 2025

- **Multi-Cloud and Hybrid Cloud:** Organizations use multiple cloud providers and combine public, private, and on-premises infrastructures for flexibility, cost savings, and to avoid vendor lock-in. This improves data security, compliance, and seamless workload management.
- **Cloud-Native Architecture:** By 2025, most new applications will be built using microservices, containers, and Kubernetes, making them more agile, scalable, and resilient.
- **AI-Powered Cloud Services:** Cloud platforms increasingly integrate AI and machine learning, automating processes, enabling predictive analytics, and enhancing decision-making.
- **Edge Computing:** Computation is moving closer to data sources (like IoT devices), reducing latency and supporting real-time applications such as autonomous vehicles and smart classrooms.
- **Quantum Cloud Computing:** Emerging technology that uses quantum computers for complex computations, offering exponential speed and efficiency improvements for data processing.
- **Sustainability:** Cloud providers are investing in energy-efficient, carbon-neutral data centers and AI-driven power management to support environmental goals.

C. Applications in Education

- Online storage and sharing of resources (Google Drive, OneDrive).
- Cloud-based learning platforms (Google Classroom, Microsoft Teams).
- Real-time collaboration on documents and projects.
- Scalable access to educational software and virtual labs.

2. Artificial Intelligence (AI) Basics

A. Definition
Artificial Intelligence (AI) is a branch of computer science that aims to create systems capable of performing tasks that typically require human intelligence, such as understanding language, recognizing patterns, and making decisions.

B. Key Concepts

Types of AI:

- **Narrow AI:** Performs specific tasks (e.g., voice assistants, chatbots).
- **General AI:** Hypothetical, would perform any intellectual task a human can do.

- **Superintelligent AI:** Beyond human intelligence (theoretical).

Domains of AI:

- **Natural Language Processing (NLP):** Understanding and processing human language (e.g., chatbots, translation tools).
- **Computer Vision:** Analyzing and interpreting visual data (e.g., facial recognition, self-driving cars).
- **Data Science:** Extracting insights from data using AI techniques.
- **Machine Learning (ML):** A subset of AI where machines learn from data to improve performance without explicit programming.
- **Deep Learning (DL):** A type of ML using neural networks for complex tasks like image and speech recognition.

C. Applications in Education

- Personalized learning and adaptive assessments.
- AI-powered tutors and chatbots for student support.
- Automated grading and feedback.
- Predictive analytics for student performance and dropout prevention.

D. Ethical Considerations

- Data privacy and security.
- Bias and fairness in AI algorithms.
- Job displacement and the need for new skills.

3. Internet of Things (IoT)

A. Definition

The Internet of Things (IoT) refers to a network of physical devices ("things") embedded with sensors, software, and connectivity, enabling them to collect and exchange data.

B. Applications in Education

- **Smart Classrooms:** Use of sensors and connected devices for attendance, lighting, and climate control.

- **Real-Time Monitoring:** Track student engagement, automate attendance (RFID), and monitor campus security.
- **Personalized Learning:** AI-powered analytics from IoT devices help teachers adjust lessons based on student progress.
- **Resource Management:** Automated control of lights, HVAC, and energy usage for cost savings and sustainability.
- **Campus Safety:** Connected cameras, access controls, and emergency systems.
- **Asset Tracking:** Managing educational equipment and resources efficiently.

C. Advantages

- Enhanced safety and security.
- Improved energy efficiency.
- Data-driven decision making for teachers and administrators.
- More interactive and personalized learning environments.

4. Digital India Initiatives

A. Overview
Digital India is a flagship program launched by the Government of India to transform the country into a digitally empowered society and knowledge economy.

B. Key Initiatives (2024-2025 Focus)
Centre of Excellence in AI for Education: ₹500 crore allocated for developing AI-powered tools, adaptive assessments, and smart administration in education.

- **Broadband Connectivity for Rural Schools:** Expansion of **BharatNet** to provide high-speed internet to all government secondary schools in rural areas, bridging the digital divide.

- **Digital Language Books (Bharatiya Bhasha Pustak Scheme):** Digital textbooks in multiple Indian languages to promote inclusivity and multilingual education.

- **National Centres of Excellence for Skilling:** Partnerships with global institutions to impart digital skills and online certifications.

- **Expansion of Atal Tinkering Labs:** 50,000 new labs in government schools to boost STEM education, coding, and problem-solving skills.

C. Other Notable Programs
- **SWAYAM:** Free online courses for students and teachers.
- **DIKSHA:** Digital infrastructure for school education, offering e-content and teacher training.
- **PM eVidya:** Multi-platform digital learning initiative for students across India.

D. Impact
- Improved access to quality digital education, especially in rural and underserved areas.
- Promotion of AI, coding, and digital literacy from an early age.
- Support for inclusive, multilingual, and skill-based learning.

5. Summary Table

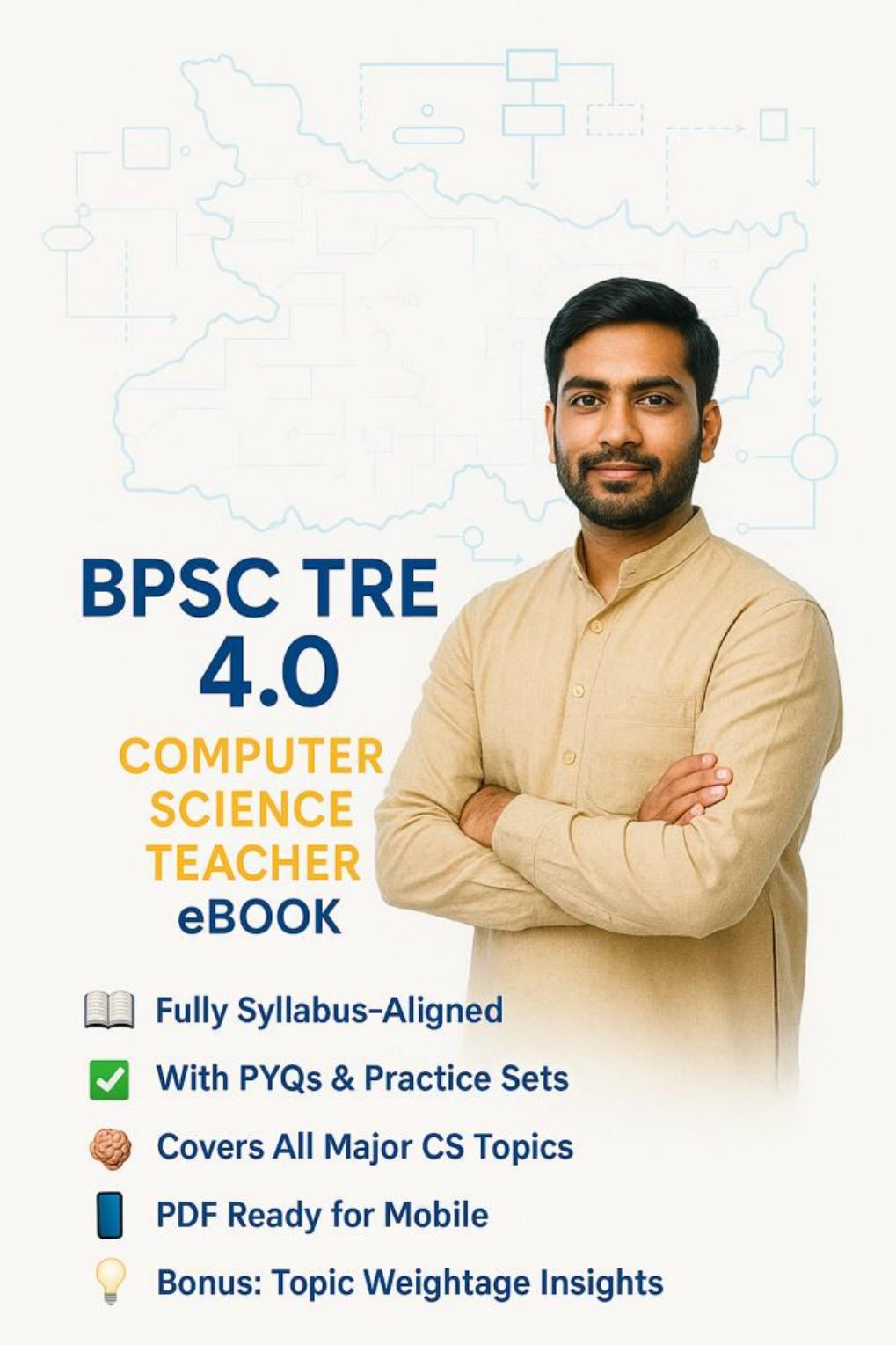
Trend/Technology	Key Features/Applications in Education
Cloud Computing	Online storage, collaboration, virtual labs, scalable resources
Artificial Intelligence	Personalized learning, AI tutors, automated assessment
IoT	Smart classrooms, real-time monitoring, campus safety
Digital India	Broadband for schools, AI in education, digital content, skilling

6. Conclusion

Understanding these recent trends is essential for modern educators. Cloud computing, AI, and IoT are transforming how schools operate and how students learn. Digital India initiatives are making these technologies accessible, aiming to bridge gaps and prepare students for the digital future.

Tip for BPSC TRE 4.0:

Focus on definitions, practical applications in education, and government initiatives. Use real-life examples and be ready to discuss the impact of these technologies on teaching and learning.



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3.	Programming: Basics of C, C++, Python, Java (syntax, logic, flowcharts, algorithms).	
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4.	Data Structures: Arrays, stacks, queues, linked lists, trees, graphs, searching & sorting.	
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5.	Database Management: DBMS concepts, SQL basics, ER diagrams, normalization.	
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6.	Networking: OSI model, TCP/IP, LAN/WAN, Internet basics, network devices, security.	
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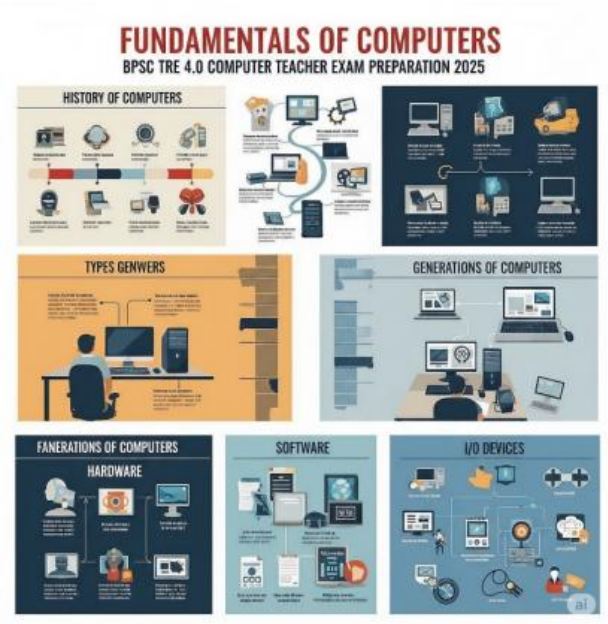
Topic 1: Fundamentals of Computers: History, types, generations, hardware, software, I/O devices.



1. Who is known as the father of computers?

A) Charles Babbage
B) Alan Turing
C) John von Neumann
D) Bill Gates
Answer: A

2. Which device is used to convert hard copy to soft copy?
A) Printer
B) Scanner
C) Monitor
D) Speaker
Answer: B

3. Which generation used vacuum tubes?
A) First
B) Second
C) Third
D) Fourth
Answer: A

4. The brain of the computer is:
A) RAM
B) CPU
C) Monitor
D) Keyboard
Answer: B

5. Which is not an input device?
A) Mouse
B) Keyboard
C) Monitor
D) Scanner
Answer: C

6. Which is a secondary storage device?
A) RAM
B) ROM
C) Hard Disk
D) Cache
Answer: C

7. Which language was used in first generation computers?
A) Assembly
B) Machine
C) High Level
D) Both A and B
Answer: D

8. Which of the following is application software?
A) Windows
B) MS Word
C) Linux
D) DOS
Answer: B

9. Which device is used to display output?
A) Printer
B) Keyboard
C) Mouse
D) Scanner
Answer: A

10. Which is a pointing device?
A) Mouse
B) Keyboard
C) Printer
D) Monitor
Answer: A

11. The first electronic computer was:
A) UNIVAC
B) ENIAC
C) EDSAC
D) EDVAC
Answer: B

12. Which is not a type of computer?
A) Analog
B) Digital
C) Hybrid
D) Manual
Answer: D
13. Which is volatile memory?
A) ROM
B) RAM
C) Hard Disk
D) CD
Answer: B
14. The main function of ALU is:
A) Store data
B) Perform arithmetic and logic operations
C) Display output
D) Control instructions
Answer: B
15. Which is not a hardware device?
A) Monitor
B) Mouse
C) MS Excel
D) Printer
Answer: C
16. Which is the smallest unit of data in a computer?
A) Byte
B) Bit
C) Nibble
D) Word
Answer: B
17. Which generation introduced microprocessors?
A) First
B) Second
C) Third
D) Fourth
Answer: D
18. Which of the following is system software?
A) MS Word
B) Excel
C) Windows
D) PowerPoint
Answer: C
19. Which is not an output device?
A) Monitor
B) Printer
C) Speaker
D) Keyboard
Answer: D
20. Which is a storage device?
A) Mouse
B) Monitor
C) Hard Disk
D) Speaker
Answer: C
21. The full form of CPU is:
A) Central Processing Unit
B) Central Programming Unit
C) Central Processor Utility
D) Central Power Unit
Answer: A
22. The main memory is also called:
A) Secondary Memory
B) Primary Memory
C) External Memory
D) Flash Memory
Answer: B
23. Which is not a computer language?
A) BASIC
B) COBOL
C) FORTRAN
D) MS Word
Answer: D
24. The first mechanical computer designed by Charles Babbage was:
A) Analytical Engine
B) Abacus
C) ENIAC
D) Pascaline
Answer: A
25. Which is a type of ROM?
A) PROM
B) EPROM
C) EEPROM
D) All of the above
Answer: D
26. The device that connects a computer to a network is called:
A) Modem
B) Printer
C) Mouse
D) Scanner
Answer: A
27. Which of the following is not a type of number system?

A) Decimal
B) Binary
C) Hexadecimal
D) Fractional
Answer: D

28. The process of starting a computer is called:
A) Formatting
B) Booting
C) Installing
D) Executing
Answer: B

29. Which is a graphical input device?
A) Light Pen
B) Keyboard
C) Printer
D) Speaker
Answer: A

30. Which is not a function of an operating system?
A) Memory Management
B) Process Management
C) Data Processing
D) Device Management
Answer: C

31. Which is an example of application software?
A) MS Excel
B) Windows
C) Linux
D) DOS
Answer: A

32. Which part of the computer is responsible for calculations?
A) CU
B) ALU
C) RAM
D) ROM
Answer: B

33. Which is not a storage device?
A) Pen Drive
B) Hard Disk
C) RAM
D) Monitor
Answer: D

34. The main circuit board of a computer is:
A) RAM
B) Motherboard
C) CPU
D) Hard Disk
Answer: B

35. Which is a portable storage device?
A) Hard Disk
B) RAM
C) Pen Drive
D) ROM
Answer: C

36. Which is not a type of printer?
A) Laser
B) Inkjet
C) Dot Matrix
D) LCD
Answer: D

37. Which is not a type of monitor?
A) CRT
B) LED
C) LCD
D) HDD
Answer: D

38. The control unit is a part of:
A) ALU
B) CPU
C) RAM
D) ROM
Answer: B

39. Which is not a function of RAM?
A) Temporary storage
B) Permanent storage
C) Fast access
D) Volatile memory
Answer: B

40. Which is not a type of computer?
A) Mainframe
B) Supercomputer
C) Minicomputer
D) Microphone
Answer: D

41. The first computer language was:
A) BASIC
B) FORTRAN
C) Machine Language
D) C
Answer: C

42. Which is not a type of software?
A) Application
B) System

C) Utility
D) Hardware
Answer: D

43. Which device is used for gaming input?
A) Keyboard
B) Joystick
C) Printer
D) Monitor
Answer: B

44. Which is not a type of RAM?
A) DRAM
B) SRAM
C) PROM
D) None
Answer: C

45. Which is not a type of ROM?
A) PROM
B) EPROM
C) EEPROM
D) SRAM
Answer: D

46. The smallest unit of memory is:
A) Bit
B) Byte
C) Nibble
D) Word
Answer: A

47. Which is an example of a hybrid computer?
A) Laptop
B) ECG Machine
C) Desktop
D) Tablet
Answer: B

48. Which is not a pointing device?
A) Mouse
B) Light Pen
C) Touchpad
D) Printer
Answer: D

49. Which is used to store data permanently?
A) RAM
B) ROM
C) Hard Disk
D) Cache
Answer: C

50. The main function of a scanner is:
A) Print documents
B) Scan images
C) Display output
D) Store data
Answer: B

51. Which is not a generation of computers?
A) First
B) Second
C) Third
D) Sixth
Answer: D

52. Which is a non-volatile memory?
A) RAM
B) ROM
C) Cache
D) Register
Answer: B

53. Which is not a function of CU?
A) Control operations
B) Arithmetic operations
C) Instruction decoding
D) Directing data flow
Answer: B

54. Which is not a type of application software?
A) Word Processor
B) Spreadsheet
C) Operating System
D) Presentation
Answer: C

55. Which is not a type of system software?
A) Compiler
B) Operating System
C) MS Word
D) Device Driver
Answer: C

56. Which is not a type of secondary storage?
A) SSD
B) CD
C) RAM
D) Pen Drive
Answer: C

57. The process of copying files from computer to internet is:
A) Downloading
B) Uploading
C) Formatting
D) Installing
Answer: B

58. Which is not a function of a computer?

A) Input
B) Output
C) Processing
D) Sleeping
Answer: D

59. Which is not a binary number?
A) 101
B) 1101
C) 202
D) 111
Answer: C

60. Which is not a type of number system?
A) Binary
B) Decimal
C) Octal
D) Digital
Answer: D

61. The first commercial computer was:
A) ENIAC
B) UNIVAC
C) EDSAC
D) EDVAC
Answer: B

62. Which is not a feature of computers?
A) Speed
B) Accuracy
C) Diligence
D) Intelligence
Answer: D

63. Which is not a storage device?
A) Floppy Disk
B) Hard Disk
C) Monitor
D) CD
Answer: C

64. Which is not a function of a printer?
A) Print
B) Scan
C) Copy
D) Display
Answer: D

65. Which is not a type of computer monitor?
A) CRT
B) LCD
C) LED
D) HDD
Answer: D

66. Which is not a type of computer memory?
A) RAM
B) ROM
C) DVD
D) Cache
Answer: C

67. Which is not a function of an OS?
A) File Management
B) Device Management
C) Process Management
D) Arithmetic Operations
Answer: D

68. Which is not a computer peripheral?
A) Mouse
B) Keyboard
C) CPU
D) Printer
Answer: C

69. Which is not a type of keyboard?
A) QWERTY
B) AZERTY
C) DVORAK
D) LCD
Answer: D

70. Which is not a computer port?
A) USB
B) HDMI
C) VGA
D) LED
Answer: D

71. Which is not a function of the mouse?
A) Pointing
B) Clicking
C) Typing
D) Dragging
Answer: C

72. Which is not a type of scanner?
A) Flatbed
B) Handheld
C) Drum
D) CRT
Answer: D

73. Which is not a function of a microphone?
A) Input sound
B) Output sound
C) Record voice
D) None
Answer: B

74. Which is not a type of printer?

A) Laser
B) Inkjet
C) Dot Matrix
D) LED Monitor
Answer: D

75. Which is not a type of software?
A) Application
B) System
C) Utility
D) Hardware
Answer: D

76. Which is not a type of input device?
A) Mouse
B) Keyboard
C) Monitor
D) Scanner
Answer: C

77. Which is not a type of output device?
A) Monitor
B) Printer
C) Speaker
D) Keyboard
Answer: D

78. Which is not a type of storage device?
A) Hard Disk
B) Pen Drive
C) Mouse
D) CD
Answer: C

79. Which is not a function of a computer?
A) Input
B) Output
C) Processing
D) Sleeping
Answer: D

80. Which is not a type of memory?
A) RAM
B) ROM
C) CPU
D) Cache
Answer: C

81. Which is not a computer language?
A) BASIC
B) COBOL
C) FORTRAN
D) MS Word
Answer: D

82. Which is not a type of computer?
A) Mainframe
B) Supercomputer
C) Minicomputer
D) Microphone
Answer: D

83. Which is not a feature of computers?
A) Speed
B) Accuracy
C) Diligence
D) Intelligence
Answer: D

84. Which is not a function of the CPU?
A) Processing
B) Storage
C) Control
D) Arithmetic
Answer: B

85. Which is not a type of storage device?
A) Hard Disk
B) Pen Drive
C) Mouse
D) CD
Answer: C

86. Which is not a function of RAM?
A) Temporary storage
B) Permanent storage
C) Fast access
D) Volatile memory
Answer: B

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A) PROM
B) EPROM
C) EEPROM
D) SRAM
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C) Dot Matrix
D) LCD
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B) LED
C) LCD
D) HDD
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B) Output sound
C) Record voice
D) None
Answer: B

94. Which is not a type of printer?
A) Laser
B) Inkjet
C) Dot Matrix
D) LED Monitor
Answer: D

95. Which is not a function of the control unit?
A) Control operations
B) Arithmetic operations
C) Instruction decoding
D) Directing data flow
Answer: B

96. Which is not a function of the ALU?
A) Arithmetic operations
B) Logic operations
C) Storage
D) None
Answer: C

97. Which is not a type of computer memory?
A) RAM
B) ROM
C) DVD
D) Cache
Answer: C

98. Which is not a function of an OS?
A) File Management
B) Device Management
C) Process Management
D) Arithmetic Operations
Answer: D

99. Which is not a computer peripheral?
A) Mouse
B) Keyboard
C) CPU
D) Printer
Answer: C

100. Which is not a type of keyboard?
A) QWERTY
B) AZERTY
C) DVORAK
D) LCD
Answer: D

MCQ Topic 2: Operating Systems: Windows, Linux, Basic Commands, and File Management

1. What is the main function of an operating system?
A) Compiling programs
B) Managing hardware and software resources
C) Creating websites
D) Printing documents
Answer: B

2. Which of the following is NOT an operating system?
A) Windows
B) Linux
C) Oracle
Answer: C

3. Windows is developed by:
A) Apple
B) Microsoft
C) Google
D) IBM
Answer: B

4. Which of the following is a Linux distribution?
A) Ubuntu
B) Windows 10
C) macOS
D) Android
Answer: A

5. What is the core of the Linux operating system?
A) Shell
B) Kernel
C) Command
D) Script
Answer: B

6. Which among the following interacts directly with system hardware?
A) Shell
B) Kernel
C) Commands
D) Applications
Answer: B

7. Which command is used to display the current working directory in Linux?
A) cd
B) ls
C) pwd
D) dir
Answer: C

8. Which command is used to list all files and directories in Linux?
A) ls
B) dir
C) list
D) show
Answer: A

9. In Windows, which tool is used to manage files and folders?
A) Taskbar
B) File Explorer
C) Control Panel
D) Paint
Answer: B

10. Which command is used to change directory in both Windows and Linux?
A) chdir
B) cd
C) dir

D) move
Answer: B

11. Which command in Linux is used to create an empty file?
A) create
B) mkfile
C) touch
D) make
Answer: C

12. What is the default file system for most Linux distributions?
A) NTFS
B) FAT32
C) ext4
D) HFS+
Answer: C

13. Which command is used to remove a file in Linux?
A) del
B) rm
C) erase
D) remove
Answer: B

14. Which command is used to remove a directory with all its subdirectories in Linux?
A) rm -b
B) rm -o
C) rm -p
D) rm -r
Answer: D

15. Which command is used to copy files in Linux?
A) copy
B) cp
C) mv
D) cut
Answer: B

16. In Windows, which shortcut is used to copy files?
A) Ctrl+X
B) Ctrl+V
C) Ctrl+C
D) Ctrl+Z
Answer: C

17. Which Linux command is used to move or rename files?
A) mv
B) cp
C) move
D) ren
Answer: A

18. Which command displays the contents of a file in Linux?
A) show
B) display
C) cat
D) open
Answer: C

19. Which command is used to print a file in Linux?
A) print
B) pr
C) lp
D) out
Answer: C

20. Which command is used to display disk usage in Linux?
A) du
B) ds
C) dd
D) dds
Answer: A

21. Which command is used to count lines, words, and characters in a file in Linux?
A) grep
B) wc
C) count
D) cut
Answer: B

22. Which command is used to add a new user in Linux?
A) adduser
B) useradd
C) newuser
D) Both A and B
Answer: D

23. Which command is used to change file permissions in Linux?
A) chmod
B) chown
C) umask
D) chgrp
Answer: A

24. Which command is used to search for a pattern in a file in Linux?
A) find

B) search
C) grep
D) scan
Answer: C

25. Which command is used to display all files including hidden files in Linux?
A) ls -a
B) ls -l
C) ls -R
D) ls -aR
Answer: A

26. What is the default shell in most Linux distributions?
A) bash
B) dash
C) zsh
D) fish
Answer: A

27. Which of the following is NOT a multitasking operating system?
A) Windows
B) Linux
C) DOS
D) macOS
Answer: C

28. Which command is used to display the operating system name in Linux?
A) os
B) unix
C) kernel
D) uname
Answer: D

29. Which command is used to get help about a command in Linux?
A) help
B) man
C) info
D) Both B and C
Answer: D

30. Which command is used to display the file inode number in Linux?
A) ls -l
B) ls -o
C) ls -a
D) ls -i
Answer: D

31. Which command is used to create a new directory in Linux?
A) newdir
B) mkdir
C) makedir
D) createdir
Answer: B

32. Which command is used to remove an empty directory in Linux?
A) rmdir
B) deldir
C) removedir
D) rm
Answer: A

33. Which command is used to display detailed information about files in Linux?
A) ls -l
B) ls -a
C) ls -lh
D) ls -ld
Answer: A

34. Which command is used to display the Unix version?
A) uname -r
B) uname -n
C) uname -t
D) kernel
Answer: A

35. Which command is used to display all files including hidden files and subdirectories in Linux?
A) ls -a
B) ls -R
C) ls -aR
D) ls -l
Answer: C

36. Which command is used to extract a column from a text file in Linux?
A) paste
B) get
C) cut
D) tar
Answer: C

37. Which command is used to display disk consumption of a directory in Linux?
A) du
B) ds
C) dd
D) dds
Answer: A

38. Which command is used to change the working directory in Linux?
A) cd
B) pwd
C) ls
D) mv
Answer: A
39. Which Windows OS introduced the Start Menu?
A) Windows 95
B) Windows 98
C) Windows XP
D) Windows 7
Answer: A
40. Which of the following is NOT a file extension in Windows?
A) .docx
B) .exe
C) .jpg
D) .binx
Answer: D
41. Which command is used to rename a file in Linux?
A) ren
B) mv
C) rn
D) name
Answer: B
42. Which command is used to display the first few lines of a file in Linux?
A) head
B) tail
C) start
D) top
Answer: A
43. Which command is used to display the last few lines of a file in Linux?
A) head
B) tail
C) end
D) last
Answer: B
44. Which command is used to compare two files in Linux?
A) cmp
B) diff
C) comm
D) All of the above
Answer: D
45. Which command is used to display the calendar in Linux?
A) cal
B) date
C) time
D) clock
Answer: A
46. Which command is used to display the date in Linux?
A) cal
B) date
C) time
D) clock
Answer: B
47. Which command is used to shut down the system in Linux?
A) shutdown
B) poweroff
C) halt
D) All of the above
Answer: D
48. Which command is used to display the running processes in Linux?
A) ps
B) top
C) htop
D) All of the above
Answer: D
49. Which command is used to search files in Linux?
A) find
B) search
C) grep
D) locate
Answer: A
50. Which command is used to display manual pages in Linux?
A) help
B) man
C) info
D) Both B and C
Answer: D
51. Which command is used to display the hostname in Linux?
A) host
B) hostname
C) uname -n

D) Both B and C
Answer: D

52. Which command is used to clear the terminal screen in Linux?
A) clear
B) cls
C) clean
D) reset
Answer: A

53. Which of the following is NOT a Linux directory?
A) /home
B) /bin
C) /usr
D) /win
Answer: D

54. Which command is used to display the currently logged-in users in Linux?
A) who
B) users
C) w
D) All of the above
Answer: D

55. Which command is used to display the amount of free disk space in Linux?
A) df
B) du
C) free
D) ls
Answer: A

56. Which command is used to display memory usage in Linux?
A) free
B) mem
C) memory
D) usage
Answer: A

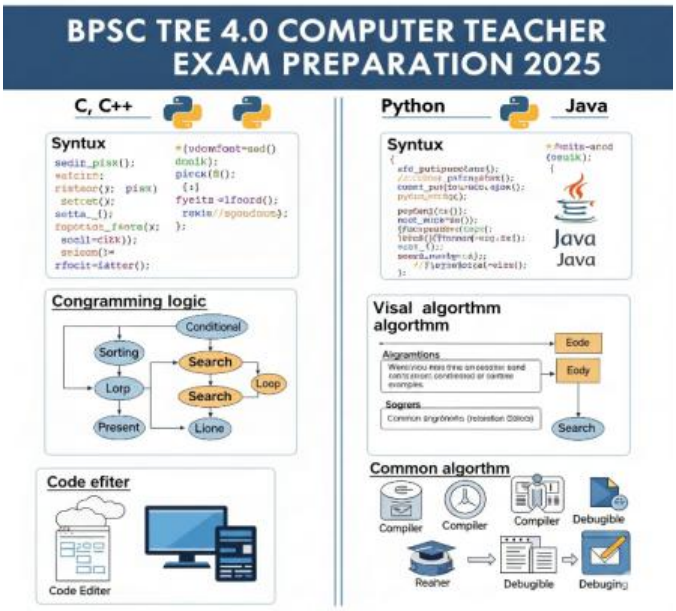
57. In Windows, which file extension is used for executable files?
A) .exe
B) .txt
C) .doc
D) .mp3
Answer: A

58. Which of the following is NOT a valid Linux command?
A) ls
B) cp
C) dir
D) copy
Answer: D

59. Which command is used to display the system date and time in Windows Command Prompt?
A) date
B) time
C) Both A and B
D) clock
Answer: C

60. Which of the following is NOT a function of an operating system?
A) File management
B) Memory management
C) Application development
D) Device management
Answer: C

Topic 3: **Programming: Basics of C, C++, Python, Java (Syntax, Logic, Flowcharts, Algorithms)**



1. Who is the creator of the C language?
A) Bjarne Stroustrup
B) Dennis Ritchie
C) James Gosling
D) Guido van Rossum
Answer: B

2. Which of the following is the correct file extension for C++ source files?
A) .c
B) .cpp
C) .py
D) .java
Answer: B

3. Who developed Python?
A) Dennis Ritchie
B) Bjarne Stroustrup
C) Guido van Rossum
D) James Gosling
Answer: C

4. Which language is known as platform-independent?
A) C
B) C++
C) Java
D) Python
Answer: C

5. What is the output of print(2 + 3 * 4) in Python?
A) 20
B) 14
C) 24
D) 9
Answer: B

6. Which symbol is used to end a statement in C?
A) ,
B) .
C) ;
D) :
Answer: C

7. Which of the following is not a valid variable name in C++?
A) myVar
B) _var
C) 2ndVar
D) var_2
Answer: C

8. Which of the following is used for single-line comments in Java?
A) //
B) /*
C) #
D) <!--
Answer: A

9. Which function is used to display output in C?

A) cout
B) print
C) printf
D) echo
Answer: C

10. What is the correct way to declare a variable in Python?
A) int x = 5;
B) x = 5
C) int x; x = 5;
D) declare x = 5
Answer: B

11. Which of the following is not a primitive data type in Java?
A) int
B) float
C) string
D) double
Answer: C

12. What is the output of cout << "Hello"; in C++?
A) Hello
B) "Hello"
C) cout << Hello
D) Error
Answer: A

13. Which function reads a line of text in Python?
A) scanf()
B) gets()
C) input()
D) read()
Answer: C

14. In C, which header file is required for printf()?
A) stdio.h
B) conio.h
C) iostream
D) string.h
Answer: A

15. Which of the following is an object-oriented language?
A) C
B) C++
C) Python
D) Both B and C
Answer: D

16. Which of the following is not a loop structure?
A) for
B) while
C) repeat
D) do-while
Answer: C

17. What is the output of System.out.println(5/2); in Java?
A) 2.5
B) 2
C) 2.0
D) Error
Answer: B

18. What is the correct syntax to start a main function in C++?
A) void main()
B) public static void main()
C) int main()
D) main()
Answer: C

19. Which of the following is used to define a block of code in Python?
A) {}
B) []
C) Indentation
D) ()
Answer: C

20. Which keyword is used to inherit a class in Java?
A) extends
B) implements
C) inherit
D) inherits

Answer: A

21. What is the correct way to write a multi-line comment in C?

A) // comment //
B) /* comment */
C) # comment #
D) <!-- comment -->
Answer: B

22. Which of the following is used for input in C++?

A) cin
B) scanf
C) input
D) gets
Answer: A

23. Which function is used to find the length of a string in Python?

A) strlen()
B) length()
C) len()
D) size()
Answer: C

24. What is the output of print(10 // 3) in Python?

A) 3.33
B) 3
C) 3.0
D) 4
Answer: B

25. Which keyword is used to define a function in Python?

A) func
B) function
C) def
D) define
Answer: C

26. Which operator is used for logical AND in C++?

A) &&
B) and
C) &
D) AND
Answer: A

27. Which of the following is a valid identifier in Java?

A) 1name
B) name_1
C) name-1
D) name 1
Answer: B

28. Which of the following is not a valid data type in C?

A) float
B) double
C) real
D) int
Answer: C

29. What is the output of System.out.println("2" + 3 + 4); in Java?

A) 234
B) 9
C) 7
D) Error
Answer: A

30. Which symbol is used for single-line comments in Python?

A) //
B) #
C) --
D) ;;
Answer: B

31. Which of the following is used to terminate a loop in C?

A) stop
B) exit
C) break
D) end
Answer: C

32. Which function is used to read formatted input in C?

A) gets()
B) scanf()

C) input()
D) cin
Answer: B

33. Which of the following is a correct way to declare an array in C++?
A) int arr;
B) array arr;
C) int arr();
D) arr int;
Answer: A

34. Which of the following is not a valid loop in Java?
A) for
B) while
C) do-while
D) repeat-until
Answer: D

35. Which of the following is not a feature of Python?
A) Dynamically typed
B) Interpreted
C) Case-insensitive
D) Indentation-based
Answer: C

36. What is the output of printf("%d", 5 == 5); in C?
A) true
B) 1
C) false
D) 0
Answer: B

37. Which of the following is the correct way to declare a class in C++?
A) class A {};
B) class A[];
C) class A();
D) class A;
Answer: A

38. Which method is the entry point of a Java program?
A) start()
B) main()
C) run()
D) execute()
Answer: B

39. Which of the following is the correct way to write a function in Python?
A) function add():
B) def add():
C) func add():
D) define add():
Answer: B

40. Which keyword is used to create an object in Java?
A) new
B) create
C) object
D) make
Answer: A

41. Which operator is used for exponentiation in Python?
A) ^
B) **
C) pow
D) exp
Answer: B

42. Which of the following is not a valid access modifier in Java?
A) public
B) private
C) protected
D) void
Answer: D

43. Which of the following is used to define a constant in C?
A) const
B) define
C) #define
D) Both A and C
Answer: D

44. Which of the following is not a valid data type in Python?
A) int

B) float
C) char
D) str
Answer: C

45. Which of the following is used to represent decision in a flowchart?
A) Rectangle
B) Diamond
C) Oval
D) Parallelogram
Answer: B

46. Which of the following is not a keyword in C++?
A) friend
B) this
C) then
D) virtual
Answer: C

47. Which of the following is used for string concatenation in Java?
A) +
B) &
C) .
D) concat
Answer: A

48. Which function is used to convert a string to integer in Python?
A) int()
B) str()
C) float()
D) chr()
Answer: A

49. Which of the following is the correct syntax for a for loop in C?
A) for(i=0; i<5; i++)
B) for i = 0 to 5
C) for(i=0, i<5, i++)
D) for i in range(5)
Answer: A

50. Which of the following is used to exit a program in Java?
A) exit()
B) quit()
C) System.exit(0)
D) stop()
Answer: C

51. What is the output of print(type(5)) in Python?
A) int
B) <class 'int'>
C) integer
D) type
Answer: B

52. Which of the following is not a valid operator in C?
A) +
B) -
C) **
D) /
Answer: C

53. Which of the following is used to declare a pointer in C++?
A) int p;
B) int p;
C) int &p;
D) pointer p;
Answer: A

54. Which of the following is used to import a package in Java?
A) include
B) import
C) using
D) package
Answer: B

55. Which of the following is not a feature of C++?
A) Object-oriented
B) Platform-independent
C) Operator overloading
D) Function overloading
Answer: B

56. Which function is used to read a character from the user in C?
A) getchar()

B) getch()
C) input()
D) read()
Answer: A

57. Which of the following is used to indicate the end of a block in Python?
A) }
B) end
C) Indentation
D) ;
Answer: C

58. Which of the following is not a valid way to declare a variable in Java?
A) int x = 5;
B) float y = 2.5;
C) string s = "hello";
D) double z;
Answer: C

59. Which of the following is used to define a macro in C?
A) #define
B) define
C) macro
D) #macro
Answer: A

60. Which of the following is used to represent input/output in a flowchart?
A) Rectangle
B) Diamond
C) Parallelogram
D) Circle
Answer: C

61. Which of the following is used to check equality in Python?
A) =
B) ==
C) :=
D) equals
Answer: B

62. Which of the following is not a valid escape sequence in C?
A) \n
B) \t
C) \b
D) \p
Answer: D

63. Which of the following is used to define a class in Java?
A) class
B) Class
C) object
D) struct
Answer: A

64. Which of the following is not a valid function name in C?
A) main
B) 1main
C) _main
D) main1
Answer: B

65. Which of the following is used to access members of a class in C++?
A) .
B) ->
C) ::
D) Both A and B
Answer: D

66. Which of the following is not a valid logical operator in Java?
A) &&
B) ||
C) !
D) <>
Answer: D

67. Which of the following is used to define a function in C?
A) function
B) def
C) void
D) func
Answer: C

68. Which of the following is not a valid data type in Java?
A) int

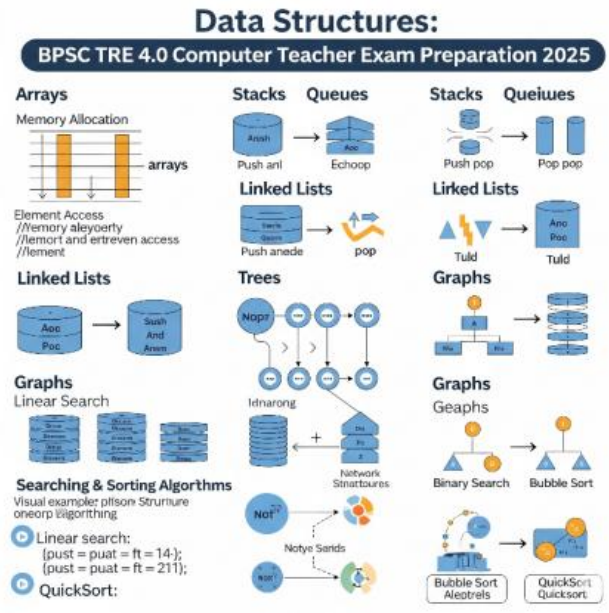
B) float
C) real
D) double
Answer: C

69. Which of the following is used to create a list in Python?
A) ()
B) []
C) {}
D) <>
Answer: B

70. Which of the following is used to represent the start/end in a flowchart?
A) Rectangle
B) Diamond
C) Oval
D) Parallelogram

Answer: C

MCQ Topic 4: Data Structures: Arrays, stacks, queues, linked lists, trees, graphs, searching & sorting.



1. Which data structure allows random access to elements using an index?
A) Array
B) Stack
C) Queue
D) Linked List
Answer: A

2. What is the time complexity for accessing an element in an array by index?
A) O(1)
B) O(n)
C) O(log n)
D) O(n^2)
Answer: A

3. Which data structure follows Last-In, First-Out (LIFO) principle?
A) Queue
B) Stack
C) Linked List
D) Tree
Answer: B

4. Which operation removes the top element from a stack?
A) Push
B) Pop
C) Enqueue
D) Dequeue
Answer: B
5. What is the time complexity of searching for an element in an unsorted array?
A) O(1)
B) O(n)
C) O(log n)
D) O(n log n)
Answer: B
6. Which data structure is used to implement recursion?
A) Stack
B) Queue
C) Array
D) Tree
Answer: A
7. Which data structure follows First-In, First-Out (FIFO) principle?
A) Stack
B) Queue
C) Linked List
D) Tree
Answer: B
8. In a queue, insertion is performed at the _____ and deletion at the _____.
A) front, rear
B) rear, front
C) middle, end
D) end, start
Answer: B
9. Which data structure is best suited for implementing a browser's back button?
A) Queue
B) Stack
C) Array
D) Tree
Answer: B
10. What is the reference of the last node in a singly linked list?
A) First node
B) Middle node
C) NULL
D) Random node
Answer: C
11. Which data structure represents a hierarchical relationship?
A) Stack
B) Queue
C) Linked List
D) Tree
Answer: D
12. What is the maximum number of children a node can have in a binary tree?
A) 1
B) 2
C) 3
D) Unlimited
Answer: B
13. Which traversal is used for Breadth First Search (BFS) in graphs?
A) Stack
B) Queue
C) Array
D) Tree
Answer: B
14. Which data structure is used for Depth First Search (DFS) in graphs?
A) Stack
B) Queue
C) Array
D) Linked List
Answer: A
15. Which of the following is a non-linear data structure?
A) Array
B) Stack
C) Tree
D) Queue
Answer: C
16. Which data structure uses pointers for sequential access?
A) Stack
B) Queue
C) Linked List
D) Tree
Answer: C
17. What is a circular linked list?
A) Last node points to first node
B) First node points to last node
C) Each node points to itself
D) No pointers

Answer: A

18. What is the disadvantage of arrays?

A) Fixed size
B) Slow access
C) Dynamic memory
D) No index
Answer: A

19. Which data structure allows insertion and deletion at both ends?

A) Stack
B) Queue
C) Deque
D) Array
Answer: C

20. What is a doubly linked list?

A) Each node points to next node
B) Each node points to previous node
C) Each node points to both next and previous nodes
D) Each node points to root
Answer: C

21. Which data structure is best for implementing a priority queue?

A) Stack
B) Queue
C) Heap
D) Array
Answer: C

22. What is the time complexity of searching in a binary search tree (BST) in best case?

A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: B

23. Which sorting algorithm repeatedly swaps adjacent elements if they are in the wrong order?

A) Selection sort
B) Bubble sort
C) Merge sort
D) Quick sort
Answer: B

24. Which sorting algorithm divides the array into halves and merges them in sorted order?

A) Selection sort
B) Bubble sort
C) Merge sort
D) Insertion sort
Answer: C

25. What is the time complexity of quick sort in average case?

A) O(n)
B) O(n^2)
C) O(n log n)
D) O(log n)
Answer: C

26. Which data structure is used for implementing function calls in programming languages?

A) Queue
B) Stack
C) Array
D) Heap
Answer: B

27. Which operation adds an element to the rear of a queue?

A) Push
B) Enqueue
C) Pop
D) Dequeue
Answer: B

28. What is the condition for an empty queue in linked list implementation?

A) Front = Rear
B) Front = NULL
C) Rear = NULL
D) Both B and C
Answer: D

29. Which data structure is used for undo operation in text editors?

A) Stack
B) Queue
C) Array
D) Tree
Answer: A

30. Which data structure is used for call center task scheduling?

A) Stack
B) Queue
C) Linked List
D) Tree
Answer: B

31. What is the time complexity of linear search?

A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: C

32. Which of the following is NOT a linear data structure?
A) Array
B) Linked List
C) Stack
D) Graph
Answer: D

33. Which data structure is used to check for balanced parenthesis in an expression?
A) Queue
B) Stack
C) Array
D) Tree
Answer: B

34. What is the time complexity of accessing an element in a linked list?
A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: C

35. Which data structure is used for implementing BFS in a graph?
A) Stack
B) Queue
C) Array
D) Tree
Answer: B

36. Which of the following is an application of stack?
A) Tower of Hanoi
B) Infix to postfix conversion
C) Function call management
D) All of the above
Answer: D

37. Which of the following is a self-referential structure?
A) Array
B) Stack
C) Linked List
D) Queue
Answer: C

38. Which data structure is used for implementing undo and redo features?
A) Stack
B) Queue
C) Array
D) Tree
Answer: A

39. Which data structure is used for level order traversal of a tree?
A) Stack
B) Queue
C) Array
D) Linked List
Answer: B

40. What is the maximum number of nodes at level 'l' in a binary tree?
A) 2^l
B) l
C) l^2
D) 2*l
Answer: A

41. Which data structure is best for implementing adjacency lists in graphs?
A) Array
B) Linked List
C) Stack
D) Queue
Answer: B

42. What is the disadvantage of a circular linked list?
A) Infinite loop possibility
B) Last node points to first node
C) Time consuming
D) More memory
Answer: A

43. Which of the following is a non-linear data structure?
A) Stack
B) Queue
C) Graph
D) Array
Answer: C

44. Which operation is performed to add an element at the top of a stack?
A) Push
B) Pop
C) Enqueue
D) Dequeue

Answer: A

45. What is the time complexity of insertion in a stack?

A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: A

46. Which data structure is used for implementing a circular queue?

A) Array
B) Linked List
C) Stack
D) Both A and B
Answer: D

47. Which of the following is true about stacks and queues?

A) Stack: LIFO, Queue: FIFO
B) Stack: FIFO, Queue: LIFO
C) Both are LIFO
D) Both are FIFO
Answer: A

48. What is the time complexity of searching in a balanced binary search tree?

A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: B

49. Which of the following is an application of queues?

A) CPU scheduling
B) Printer task scheduling
C) Call center systems
D) All of the above
Answer: D

50. Which sorting algorithm is best for small datasets?

A) Bubble sort
B) Insertion sort
C) Merge sort
D) Quick sort
Answer: B

51. Which data structure is used for implementing a hash table?

A) Stack
B) Queue
C) Array
D) Linked List
Answer: C

52. What is the worst-case time complexity of binary search?

A) O(1)
B) O(log n)
C) O(n)
D) O(n log n)
Answer: B

53. Which data structure is used to represent a sparse matrix efficiently?

A) Array
B) Linked List
C) Stack
D) Queue
Answer: B

54. Which traversal is used for evaluating arithmetic expressions in a tree?

A) Inorder
B) Preorder
C) Postorder
D) Level order
Answer: C

55. Which of the following is NOT a type of tree?

A) Binary tree
B) AVL tree
C) Red-Black tree
D) Circular tree
Answer: D

56. Which data structure is used for implementing undo operation in text editors?

A) Stack
B) Queue
C) Array
D) Tree
Answer: A

57. What is the time complexity of deletion in a queue?

A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: A

58. Which of the following is a disadvantage of arrays?

A) Fixed size
B) Wastage of memory

C) Insertion/deletion is costly
D) All of the above
Answer: D

59. Which data structure is used for implementing BFS in a graph?
A) Stack
B) Queue
C) Array
D) Tree
Answer: B

60. Which sorting algorithm has the best average case performance?
A) Bubble sort
B) Selection sort
C) Quick sort
D) Insertion sort
Answer: C

61. Which data structure is used for polynomial representation?
A) Array
B) Linked List
C) Stack
D) Queue
Answer: B

62. What is the time complexity of insertion in a linked list?
A) O(1)
B) O(n)
C) O(log n)
D) O(n^2)
Answer: A

63. Which of the following is NOT a linear data structure?
A) Array
B) Stack
C) Tree
D) Queue
Answer: C

64. Which data structure is used for function call management?
A) Stack
B) Queue
C) Array
D) Tree
Answer: A

65. Which of the following is used for implementing adjacency matrix in graphs?
A) Array
B) Linked List
C) Stack
D) Queue
Answer: A

66. Which data structure is used for implementing undo and redo features?
A) Stack
B) Queue
C) Array
D) Tree
Answer: A

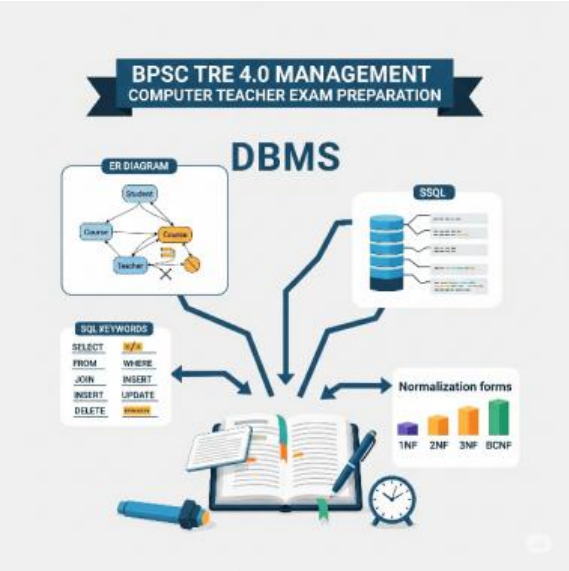
67. Which of the following is true about binary trees?
A) Each node has at most two children
B) Each node has at most one child
C) Each node has at most three children
D) Each node has unlimited children
Answer: A

68. What is the time complexity of searching in a hash table (average case)?
A) O(1)
B) O(log n)
C) O(n)
D) O(n^2)
Answer: A

69. Which data structure is used for implementing a circular queue?
A) Array
B) Linked List
C) Stack
D) Both A and B
Answer: D

70. Which data structure is used for implementing infix to postfix conversion?
A) Stack
B) Queue
C) Array
D) Tree
Answer: A

MCQ Topic 5: Database Management: DBMS concepts, SQL basics, ER diagrams, normalization.



1. What is the full form of DBMS?
A) Data Binary Management System
B) Database Management System
C) Database Management Service
D) Data Backup Management System
Answer: B

2. What is database?
A) Organized collection of data
B) Collection of program
C) Type of software
D) Type of computer
Answer: A

3. Which of the following is NOT a function of DBMS?
A) Data storage
B) Data manipulation
C) Data security
D) Software installation
Answer: D

4. Which of the following is a component of DBMS?
A) Data
B) Data Manager
C) Data Languages
D) All of the above
Answer: D

5. Who created the first DBMS?
A) Edgar F. Codd
B) Charles Bachman
C) Charles Babbage
D) Sharon B. Codd
Answer: B

6. Which type of data can be stored in a database?
A) Text
B) Images
C) Audio/Video
D) All of the above
Answer: D

7. Which of the following is not a type of database?
A) Hierarchical
B) Network
C) Distributed
D) Decentralized
Answer: D

8. The overall design of the database is called:
A) Instance
B) Schema
C) Table
D) Tuple
Answer: B

9. The collection of information stored at a particular moment is called:
A) Schema
B) Instance

C) Table
D) Attribute
Answer: B

10. Which of the following is a feature of DBMS?
A) Data redundancy
B) Data inconsistency
C) Data security
D) Data isolation
Answer: C

SQL Basics

11. Which command is used to create a new table in SQL?
A) INSERT
B) CREATE TABLE
C) UPDATE
D) ALTER
Answer: B

12. Which command is used to remove all records from a table, including all spaces allocated?
A) DELETE
B) REMOVE
C) DROP
D) TRUNCATE
Answer: D

13. Which SQL statement is used to extract data from a database?
A) GET
B) SELECT
C) EXTRACT
D) OPEN
Answer: B

14. Which SQL clause is used to filter the results of a query?
A) ORDER BY
B) WHERE
C) GROUP BY
D) HAVING
Answer: B

15. Which command is used to add a new record in a table?
A) ADD
B) INSERT INTO
C) NEW
D) APPEND
Answer: B

16. Which command is used to change data in a table?
A) INSERT
B) UPDATE
C) SELECT
D) DELETE
Answer: B

17. Which SQL keyword is used to sort the result-set?
A) ORDER BY
B) SORT BY
C) GROUP BY
D) ARRANGE BY
Answer: A

18. Which command is used to remove a table from the database?
A) DELETE
B) REMOVE
C) DROP
D) ERASE
Answer: C

19. Which SQL statement is used to modify the structure of an existing table?
A) ALTER TABLE
B) MODIFY TABLE
C) CHANGE TABLE
D) UPDATE TABLE
Answer: A

20. Which SQL function is used to count the number of rows in a table?
A) TOTAL()
B) COUNT()

C) SUM()
D) NUMBER()
Answer: B

ER Diagrams

21. In an ER diagram, rectangles represent:
A) Entities
B) Attributes
C) Relationships
D) Keys
Answer: A

22. In an ER diagram, ellipses represent:
A) Entities
B) Attributes
C) Relationships
D) Keys
Answer: B

23. In an ER diagram, diamonds represent:
A) Entities
B) Attributes
C) Relationships
D) Keys
Answer: C

24. The line connecting an entity to an attribute in an ER diagram represents:
A) Relationship
B) Ownership
C) Association
D) Mapping
Answer: C

25. A weak entity is:
A) An entity with no attributes
B) An entity that cannot be uniquely identified by its attributes alone
C) An entity with only one attribute
D) A temporary entity
Answer: B

26. Which of the following is a one-to-many relationship?
A) A student has one roll number
B) A department has many employees
C) A country has one capital
D) A book has one title
Answer: B

27. In an ER diagram, a double rectangle represents:
A) Strong entity
B) Weak entity
C) Attribute
D) Relationship
Answer: B

28. Which symbol is used for multi-valued attributes in ER diagrams?
A) Double ellipse
B) Rectangle
C) Diamond
D) Double rectangle
Answer: A

29. Which of the following is not a type of attribute in ER diagrams?
A) Simple
B) Composite
C) Derived
D) Sequential
Answer: D

30. The process of designing the structure of a database is called:
A) Normalization
B) Data Modeling
C) Data Mining
D) Data Warehousing
Answer: B

Normalization

31. What is the main purpose of normalization?
A) To increase redundancy
B) To reduce redundancy

C) To increase data inconsistency
D) To reduce security
Answer: B

32. 1NF (First Normal Form) requires:
A) No duplicate rows
B) No repeating groups
C) No composite attributes
D) All of the above
Answer: D

33. A table is in 2NF if:
A) It is in 1NF and every non-prime attribute is fully functionally dependent on the primary key
B) It is in 1NF and has no partial dependency
C) Both A and B
D) None of the above
Answer: C

34. 3NF (Third Normal Form) removes:
A) Partial dependency
B) Transitive dependency
C) Multi-valued dependency
D) Functional dependency
Answer: B

35. Which normal form removes transitive dependency?
A) 1NF
B) 2NF
C) 3NF
D) BCNF
Answer: C

36. Which of the following is a violation of 1NF?
A) Atomic values
B) Non-atomic values
C) Unique keys
D) Foreign keys
Answer: B

37. A table with a single candidate key is always in:
A) 1NF
B) 2NF
C) 3NF
D) BCNF
Answer: D

38. Which normal form is based on the concept of functional dependency?
A) 1NF
B) 2NF
C) 3NF
D) All of the above
Answer: D

39. Which of the following is not a normal form?
A) 1NF
B) 2NF
C) 4NF
D) 5NF
Answer: None (All are normal forms)

40. Which normal form deals with multi-valued dependencies?
A) 1NF
B) 2NF
C) 3NF
D) 4NF
Answer: D

41. Keys and Constraints
A primary key:
A) Can be NULL
B) Must be unique
C) Can have duplicate values
D) Is not necessary
Answer: B

42. A foreign key is used to:
A) Uniquely identify a record
B) Link two tables
C) Sort data
D) Encrypt data
Answer: B

43. A candidate key is:
A) A key that can uniquely identify a row
B) Always the primary key
C) Never used

D) Used for sorting
Answer: A

44. A composite key is:
A) A key with only one attribute
B) A key with multiple attributes
C) A key with no attributes
D) A key with foreign attributes
Answer: B

45. Which constraint ensures that a column cannot have NULL values?
A) UNIQUE
B) PRIMARY KEY
C) NOT NULL
D) CHECK
Answer: C

46. Which constraint is used to ensure all values in a column are different?
A) PRIMARY KEY
B) UNIQUE
C) NOT NULL
D) FOREIGN KEY
Answer: B

47. Which constraint is used to enforce a condition on a column?
A) CHECK
B) DEFAULT
C) NOT NULL
D) UNIQUE
Answer: A

48. Which key is used to uniquely identify each record in a table?
A) Foreign key
B) Candidate key
C) Primary key
D) Alternate key
Answer: C

49. Which key is not selected as primary key but can be used as one?
A) Composite key
B) Alternate key
C) Super key
D) Foreign key
Answer: B

50. Which of the following is a set of one or more attributes that uniquely identifies a record?
A) Primary key
B) Candidate key
C) Super key
D) All of the above
Answer: D

51. SQL Queries and Functions
Which SQL function returns the largest value in a column?
A) MAX()
B) MIN()
C) AVG()
D) COUNT()
Answer: A

52. Which SQL function returns the average value of a numeric column?
A) SUM()
B) AVG()
C) MEAN()
D) COUNT()
Answer: B

53. Which SQL function returns the number of rows?
A) COUNT()
B) SUM()
C) TOTAL()
D) NUMBER()
Answer: A

54. Which SQL clause is used to group rows that have the same values?
A) GROUP BY
B) ORDER BY
C) HAVING
D) WHERE
Answer: A

55. Which SQL clause is used to filter groups?
A) WHERE
B) GROUP BY

C) HAVING
D) ORDER BY
Answer: C

56. Which SQL statement is used to delete a table?
A) DELETE
B) DROP
C) REMOVE
D) ERASE
Answer: B

57. Which SQL statement is used to add a new column to a table?
A) ALTER TABLE
B) ADD COLUMN
C) MODIFY TABLE
D) UPDATE TABLE
Answer: A

58. Which SQL command is used to change the value of a column in a table?
A) ALTER
B) UPDATE
C) MODIFY
D) CHANGE
Answer: B

59. Which SQL function returns the smallest value in a column?
A) MIN()
B) MAX()
C) AVG()
D) COUNT()
Answer: A

60. Which SQL keyword is used to eliminate duplicate rows?
A) DISTINCT
B) UNIQUE
C) ONLY
D) FIRST
Answer: A

Advanced DBMS Concepts

61. What does ACID stand for?
A) Atomicity, Consistency, Isolation, Durability
B) Accuracy, Consistency, Integrity, Durability
C) Atomicity, Concurrency, Isolation, Durability
D) Accuracy, Concurrency, Isolation, Durability
Answer: A

62. Which property ensures that a transaction is all-or-nothing?
A) Consistency
B) Atomicity
C) Isolation
D) Durability
Answer: B

63. Which property ensures that a transaction does not affect other transactions?
A) Consistency
B) Atomicity
C) Isolation
D) Durability
Answer: C

64. Which property ensures that once a transaction is committed, it remains so?
A) Consistency
B) Atomicity
C) Isolation
D) Durability
Answer: D

65. Which property ensures that database remains in a valid state before and after a transaction?
A) Consistency
B) Atomicity
C) Isolation
D) Durability
Answer: A

66. What is a transaction?

A) A single SQL command
B) A set of logically related operations
C) A table
D) A database
Answer: B

67. Which SQL command is used to save all changes made during the current transaction?
A) SAVE
B) COMMIT
C) ROLLBACK
D) END
Answer: B

68. Which SQL command is used to undo changes since the last commit?
A) SAVE
B) COMMIT
C) ROLLBACK
D) END
Answer: C

69. Which of the following is NOT a type of DBMS model?
A) Hierarchical
B) Network
C) Relational
D) Sequential
Answer: D

70. Which of the following is a relational database management system?
A) MySQL
B) Oracle
C) SQL Server
D) All of the above
Answer: D

71. ER Modeling and Relationships
An entity set that does not have sufficient attributes to form a primary key is a:
A) Strong entity set
B) Weak entity set
C) Simple entity set
D) Primary entity set
Answer: B

72. A relationship in which one entity is associated with many entities of another type is:
A) One-to-one
B) One-to-many
C) Many-to-one
D) Many-to-many
Answer: B

73. A derived attribute is represented in ER diagrams by:
A) Dashed ellipse
B) Double ellipse
C) Rectangle
D) Diamond
Answer: A

74. A composite attribute is:
A) An attribute with more than one value
B) An attribute that can be divided into smaller sub-parts
C) An attribute with only one value
D) None of the above
Answer: B

75. Which of the following is not a valid relationship type in ER diagrams?
A) One-to-one
B) One-to-many
C) Many-to-one
D) None-to-many
Answer: D

76. The process of mapping ER diagrams to tables is called:
A) Normalization
B) Schema mapping
C) Data mining
D) Data warehousing
Answer: B

77. The total number of entity sets that participate in a relationship is called:
A) Degree

B) Cardinality
C) Participation
D) Connectivity
Answer: A

78. The number of times an entity set participates in a relationship is called:
A) Degree
B) Cardinality
C) Participation
D) Connectivity
Answer: B

79. Which of the following is not a valid attribute type?
A) Simple
B) Composite
C) Derived
D) Sequential
Answer: D

80. Which of the following is a ternary relationship?
A) Involves two entities
B) Involves three entities
C) Involves four entities
D) Involves one entity
Answer: B

81. Normalization and Decomposition Which of the following is not a step in normalization?
A) Removing repeating groups
B) Removing partial dependency
C) Removing transitive dependency
D) Adding redundancy
Answer: D

82. Which normal form is concerned with removing partial dependency?
A) 1NF
B) 2NF
C) 3NF
D) 4NF
Answer: B

83. Which normal form is concerned with removing multi-valued dependency?
A) 2NF
B) 3NF
C) 4NF
D) 5NF
Answer: C

84. A table with transitive dependency is not in:
A) 1NF
B) 2NF
C) 3NF
D) 4NF
Answer: C

85. Which of the following is a benefit of normalization?
A) Data redundancy
B) Data inconsistency
C) Data integrity
D) Data isolation
Answer: C

86. Which of the following is a lossless decomposition?
A) No loss of data
B) Loss of data
C) Loss of information
D) Loss of attributes
Answer: A

87. Which of the following is a dependency preservation property?
A) All functional dependencies are preserved
B) Some dependencies are lost
C) No dependencies are preserved
D) None of the above
Answer: A

88. Which of the following is not a type of dependency?
A) Functional
B) Partial
C) Transitive

D) Sequential
Answer: D

89. Which of the following is not a reason for denormalization?
A) Improve performance
B) Reduce complexity
C) Increase redundancy
D) Increase inconsistency
Answer: D

90. Which of the following is used to uniquely identify a row in a table?
A) Foreign key
B) Primary key
C) Alternate key
D) Candidate key
Answer: B

Miscellaneous

91. Which of the following is not a DDL command?
A) CREATE
B) DROP
C) ALTER
D) SELECT
Answer: D

92. Which of the following is not a DML command?
A) SELECT
B) INSERT
C) DELETE
D) DROP
Answer: D

93. Which of the following is a DCL command?
A) GRANT
B) SELECT
C) UPDATE
D) INSERT
Answer: A

94. Which of the following is not a TCL command?
A) COMMIT
B) ROLLBACK
C) SAVEPOINT
D) DELETE
Answer: D

95. Which of the following is not a valid SQL data type?
A) INT
B) VARCHAR
C) FLOAT
D) NUMBERIC
Answer: D

96. Which command is used to remove a record from a table?
A) DELETE
B) REMOVE
C) DROP
D) ERASE
Answer: A

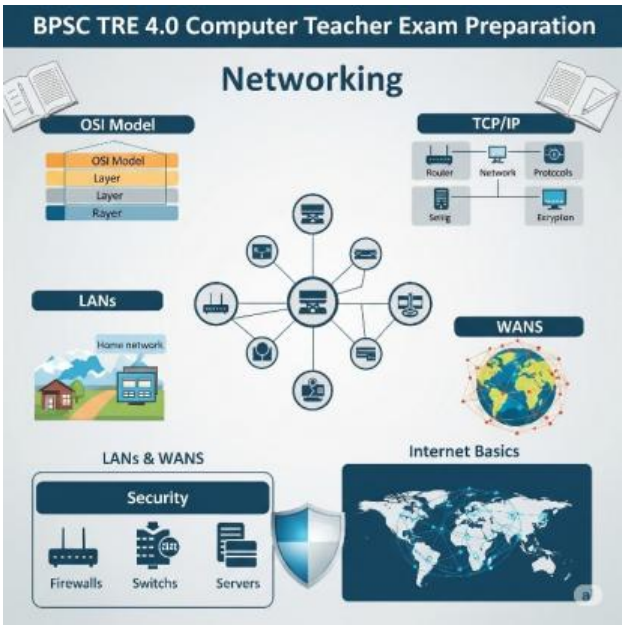
97. Which of the following is a command to retrieve data from a database?
A) SELECT
B) GET
C) EXTRACT
D) FIND
Answer: A

98. Which of the following is not a valid aggregate function in SQL?
A) SUM()
B) COUNT()
C) AVG()
D) NUMBER()
Answer: D

99. Which of the following is not a valid SQL clause?
A) WHERE
B) HAVING
C) ORDER BY
D) BETWEEN BY
Answer: D

100. Which of the following is not a valid SQL keyword?
A) SELECT
B) FROM
C) WHERE
D) PRINT
Answer: D

MCQ Topic 6: Networking: OSI model, TCP/IP, LAN/WAN, Internet basics, network devices, security.



OSI Model & TCP/IP

1. How many layers are there in the OSI model?
A) 4
B) 5
C) 6
D) 7
Answer: D
2. The OSI model was developed by:
A) ISO
B) IEEE
C) IETF
D) ITU
Answer: A
3. Which layer of OSI is responsible for logical addressing and routing?
A) Data Link
B) Network
C) Transport
D) Session
Answer: B
4. Which layer of OSI model provides encryption and compression?
A) Application
B) Presentation
C) Session
D) Data Link
Answer: B

5. Which OSI layer is responsible for end-to-end delivery?
A) Network
B) Data Link
C) Transport
D) Session
Answer: C
6. Which layer of OSI model is closest to the user?
A) Application
B) Presentation
C) Session
D) Network
Answer: A

7. The TCP/IP model has how many layers?
A) 4
B) 5
C) 6
D) 7
Answer: A
8. Which layer in TCP/IP model handles routing?
A) Application
B) Transport
C) Internet
D) Network Access
Answer: C

9. Which protocol works at the Transport layer of TCP/IP?
A) IP
B) TCP
C) Ethernet
D) ARP
Answer: B
10. The Application layer in TCP/IP combines which OSI layers?
A) Application, Presentation, Session
B) Network, Transport, Data Link
C) Physical, Data Link
D) None
Answer: A

LAN/WAN/MAN/PAN

11. Which is the smallest network?
A) LAN
B) WAN
C) PAN
D) MAN
Answer: C
12. A network covering a city is called:
A) LAN
B) WAN
C) MAN
D) PAN
Answer: C
13. A network covering a country is called:
A) LAN
B) WAN
C) MAN
D) PAN
Answer: B
14. Which network connects computers within a building?
A) LAN
B) WAN
C) MAN
D) PAN
Answer: A
15. What is the correct order of network size (smallest to largest)?
A) PAN, LAN, MAN, WAN
B) LAN, PAN, MAN, WAN
C) PAN, MAN, LAN, WAN
D) LAN, MAN, WAN, PAN
Answer: A
16. Which network is used within a single person's workspace?
A) LAN
B) WAN
C) MAN
D) PAN
Answer: D
17. The first form of the internet was:
A) ARPANET
B) Intranet
C) Extranet
D) Ethernet
Answer: A
18. Which network is private and accessible only to an organization's members?
A) Internet
B) Intranet
C) Extranet
D) WAN
Answer: B
19. Which network allows selected external users limited access?
A) Intranet
B) Extranet
C) Internet
D) LAN
Answer: B
20. Which network is used for global communication?
A) Intranet
B) Extranet
C) Internet
D) PAN

Answer: C

Internet Basics & Protocols

21. What does HTTP stand for?
A) Hyper Text Transfer Protocol
B) High Text Transfer Protocol
C) Hyper Transfer Text Protocol
D) None
Answer: A

22. Which protocol is used for secure web browsing?
A) HTTP
B) HTTPS
C) FTP
D) SMTP
Answer: B

23. Which protocol is used for email transmission?
A) FTP
B) SMTP
C) HTTP
D) SNMP
Answer: B

24. Which protocol is used for file transfer?
A) FTP
B) SMTP
C) HTTP
D) POP3
Answer: A

25. What is the function of DNS?
A) Assign IP addresses
B) Resolve domain names
C) Encrypt data
D) Connect LANs
Answer: B

26. Which protocol is connectionless?
A) TCP
B) UDP
C) HTTP
D) FTP
Answer: B

27. Which protocol is used for remote login?
A) FTP
B) Telnet
C) SMTP
D) DNS
Answer: B

28. Which protocol is used to retrieve emails from a server?
A) SMTP
B) POP3
C) HTTP
D) FTP
Answer: B

29. Which protocol is used for network management?
A) SNMP
B) SMTP
C) HTTP
D) FTP
Answer: A

30. What is the port number for HTTP?
A) 21
B) 23
C) 25
D) 80
Answer: D

Network Devices

31. Which device connects multiple computers in a LAN?
A) Switch
B) Router
C) Modem
D) Repeater
Answer: A

32. Which device connects different networks?
A) Switch
B) Router
C) Hub
D) Bridge
Answer: B

33. Which device amplifies signals?
A) Switch
B) Router
C) Repeater
D) Modem
Answer: C

34. Which device connects two LAN segments and filters traffic?
A) Hub
B) Bridge
C) Router
D) Switch

Answer: B

35. Which device converts digital signals to analog?

A) Switch
B) Router
C) Modem
D) Bridge
Answer: C

36. Which device broadcasts data to all connected devices?

A) Switch
B) Hub
C) Router
D) Bridge
Answer: B

37. Which device is used for wireless connectivity?

A) Modem
B) Access Point
C) Switch
D) Bridge
Answer: B

38. Which device is used to connect networks using different protocols?

A) Gateway
B) Switch
C) Hub
D) Repeater
Answer: A

39. Which device is used to extend the range of a network?

A) Router
B) Switch
C) Repeater
D) Gateway
Answer: C

40. Which device is used for load balancing?

A) Hub
B) Switch
C) Load Balancer
D) Bridge
Answer: C

OSI Layers & Functions

41. Which layer is responsible for error detection and correction?
A) Physical
B) Data Link
C) Network
D) Session
Answer: B

42. Which layer is responsible for physical transmission of data?
A) Physical
B) Data Link
C) Network
D) Transport
Answer: A

43. Which layer is responsible for session management?

A) Session
B) Presentation
C) Application
D) Transport
Answer: A

44. Which layer handles data formatting and encryption?

A) Presentation
B) Application
C) Session
D) Network
Answer: A

45. Which layer is responsible for flow control?

A) Transport
B) Network
C) Data Link
D) Physical
Answer: A

46. Which layer handles MAC addressing?

A) Data Link
B) Network
C) Physical
D) Application
Answer: A

47. Which layer is responsible for packet switching?

A) Network
B) Data Link
C) Transport
D) Session
Answer: A

48. Which layer is responsible for segmentation and reassembly?

A) Transport

B) Network
C) Data Link
D) Application
Answer: A

49. Which layer is responsible for routing?
A) Network
B) Data Link
C) Transport
D) Application
Answer: A

50. Which layer is responsible for port addressing?
A) Transport
B) Network
C) Data Link
D) Physical
Answer: A

IP Addressing & Subnetting

51. What is the length of an IPv4 address?
A) 16 bits
B) 32 bits
C) 64 bits
D) 128 bits
Answer: B

52. What is the length of an IPv6 address?
A) 32 bits
B) 64 bits
C) 128 bits
D) 256 bits
Answer: C

53. Which class of IP address is used for multicasting?
A) Class A
B) Class B
C) Class D
D) Class E
Answer: C

54. What is the default subnet mask for a Class C IP address?
A) 255.0.0.0
B) 255.255.0.0
C) 255.255.255.0
D) 255.255.255.255
Answer: C

55. Which of the following is a private IP address?
A) 192.168.1.1
B) 8.8.8.8
C) 172.217.0.0
D) 54.23.12.1
Answer: A

56. Which protocol is used for dynamic IP addressing?
A) DNS
B) DHCP
C) FTP
D) SMTP
Answer: B

57. What is the loopback IP address?
A) 127.0.0.1
B) 192.168.0.1
C) 10.0.0.1
D) 255.255.255.255
Answer: A

58. Which protocol translates domain names to IP addresses?
A) DHCP
B) DNS
C) FTP
D) SMTP
Answer: B

59. Which of the following is not a valid IP address?
A) 192.168.1.1
B) 256.100.50.25
C) 10.0.0.1
D) 172.16.0.1
Answer: B

60. Which protocol is used for error reporting in networks?
A) ICMP
B) ARP
C) TCP
D) UDP
Answer: A

Network Topologies & Media

61. Which topology connects each device to every other device?
A) Bus

B) Ring
C) Mesh
D) Star
Answer: C

62. Which topology uses a central hub?
A) Bus
B) Star
C) Ring
D) Mesh
Answer: B

63. Which topology is most commonly used in LANs?
A) Bus
B) Star
C) Ring
D) Mesh
Answer: B

64. Which cable is most immune to electromagnetic interference?
A) Twisted pair
B) Coaxial
C) Optical fiber
D) None
Answer: C

65. Which media is used for wireless communication?
A) Optical fiber
B) Microwave
C) Coaxial cable
D) Twisted pair
Answer: B

66. Which access method is used in Ethernet?
A) CSMA/CD
B) Token passing
C) Polling
D) FDDI
Answer: A

67. Which cable is used for telephone lines?
A) Coaxial
B) Twisted pair
C) Optical fiber
D) HDMI
Answer: B

68. Which of the following is not a guided transmission medium?
A) Twisted pair
B) Coaxial cable
C) Microwave
D) Optical fiber
Answer: C

69. Which device is used at the physical layer?
A) Hub
B) Switch
C) Router
D) Bridge
Answer: A

70. Which device operates at both Data Link and Network layers?
A) Switch
B) Router
C) Hub
D) Repeater
Answer: B

Network Security

71. What is the main function of a firewall?
A) Block unauthorized access
B) Amplify signals
C) Assign IP addresses
D) Encrypt data
Answer: A

72. Which software is used to detect and remove viruses?
A) Firewall
B) Antivirus
C) Router
D) Switch
Answer: B

73. What is phishing?
A) A type of firewall
B) A method to steal sensitive data
C) A network protocol
D) A type of cable
Answer: B

74. Which of the following is not a malware?
A) Virus
B) Worm
C) Trojan
D) Firewall
Answer: D

75. What is encryption?
A) Converting data to code
B) Blocking data
C) Deleting data
D) Compressing data

Answer: A

76. Which protocol is used for secure data transmission?

A) HTTP
B) HTTPS
C) FTP
D) Telnet
Answer: B

77. What is the full form of VPN?

A) Virtual Private Network
B) Virtual Public Network
C) Verified Private Network
D) None
Answer: A

78. Which device can prevent DDoS attacks?

A) Switch
B) Firewall
C) Repeater
D) Hub
Answer: B

79. What is the purpose of authentication?

A) Verifying user identity
B) Encrypting data
C) Routing data
D) Assigning IP addresses
Answer: A

80. Which of the following is not a security threat?

A) Virus
B) Firewall
C) Worm
D) Trojan
Answer: B

Miscellaneous & PYQs

81. Which of the following is not a network protocol?

A) TCP
B) UDP
C) HTTP
D) BIOS
Answer: D

82. Which of the following is not a valid port number?

A) 21
B) 80
C) 8080
D) 99999
Answer: D

83. Which protocol is used for voice over IP?

A) FTP
B) SMTP
C) VoIP
D) SNMP
Answer: C

84. Which of the following is not a function of the Data Link layer?

A) Framing
B) Error detection
C) Routing
D) Flow control
Answer: C

85. Which protocol is used for remote desktop connection?

A) RDP
B) FTP
C) HTTP
D) SMTP
Answer: A

86. Which device is used to connect to the Internet via telephone lines?

A) Modem
B) Switch
C) Router
D) Bridge
Answer: A

87. Which of the following is not an application layer protocol?

A) HTTP
B) FTP
C) SMTP
D) TCP
Answer: D

88. Which of the following is used for error detection at the Data Link layer?

A) Parity bit
B) CRC
C) Checksum
D) All of the above
Answer: D

89. Which of the following is not a type of network?

A) LAN
B) WAN

C) PAN
D) TAN
Answer: D

90. Which protocol is used for network time synchronization?
A) NTP
B) FTP
C) SMTP
D) HTTP
Answer: A

91. Which protocol is used to assign IP addresses automatically?
A) DNS
B) DHCP
C) ARP
D) ICMP
Answer: B

92. Which of the following is a connection-oriented protocol?
A) UDP
B) TCP
C) ICMP
D) ARP
Answer: B

93. Which of the following is a connectionless protocol?
A) TCP
B) UDP
C) FTP
D) SMTP
Answer: B

94. Which protocol is used for address resolution?
A) ARP
B) DHCP
C) SMTP
D) FTP
Answer: A

95. Which of the following is not a switching technique?
A) Circuit switching
B) Packet switching
C) Message switching
D) Frequency switching
Answer: D

96. Which protocol is used for secure file transfer?
A) FTP
B) SFTP
C) SMTP
D) HTTP
Answer: B

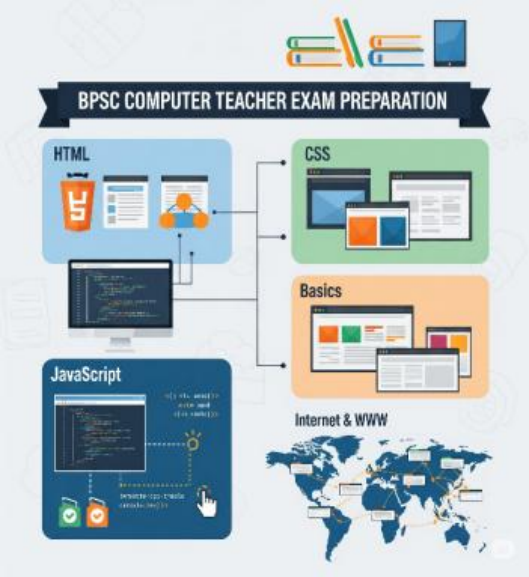
97. Which protocol is used for web browsing?
A) HTTP
B) FTP
C) SMTP
D) SNMP
Answer: A

98. Which of the following is not a function of a router?
A) Routing packets
B) Assigning IP addresses
C) Filtering traffic
D) Connecting networks
Answer: B

99. Which layer of OSI model is responsible for establishing, managing and terminating sessions?
A) Session
B) Presentation
C) Application
D) Network
Answer: A

100. Which layer of OSI model is responsible for syntax and semantics of information?
A) Application
B) Presentation
C) Session
D) Network
Answer: B

MCQ Topic 7: Web Technologies: HTML, CSS, Basics of JavaScript, Internet and WWW



HTML (HyperText Markup Language)

1. What does HTML stand for?
A) Hyperlinks and Text Markup Language
B) Home Tool Markup Language
C) Hyper Text Markup Language
D) Hyper Tool Markup Language
Answer: C

2. Which tag is used for the largest heading?
A) <h6>
B) <heading>
C) <h1>
D) <head>
Answer: C

3. Which tag is used to create a hyperlink in HTML?
A) <link>
B) <a>
C) <href>
D) <hyperlink>
Answer: B

4. What is the correct HTML for inserting an image?
A) <img href="image.jpg">
B) <img src="image.jpg">
C) <image src="image.jpg">
D) <img link="image.jpg">
Answer: B

5. Which tag is used to create a line break?
A) <break>
B)
C) <lb>
D) <line>
Answer: B

6. The correct HTML tag for a paragraph is:
A) <par>
B) <p>
C) <pg>
D) <paragraph>
Answer: B

7. Which attribute is used in the <img> tag to provide alternative text?
A) alt
B) title
C) src
D) text
Answer: A

8. HTML documents are saved with which extension?
A) .htm or .html
B) .doc
C) .txt
D) .web
Answer: A

9. Which tag is used to create a numbered list?
A)
B)
C)
D) <dl>
Answer: B

10. Which tag is used to create a table row?
A) <tr>
B) <td>

C) <th>
D) <table>
Answer: A

11. What does the <title> tag do?
A) Sets the page heading
B) Sets the browser tab title
C) Displays the main content
D) Adds a comment
Answer: B

12. Which tag is used to make text bold?
A) <b>
B)
C) Both A and B
D) <bold>
Answer: C

13. Which tag is used to create a dropdown list?
A) <input>
B) <select>
C) <dropdown>
D) <list>
Answer: B

14. Which tag is used to insert a horizontal line?
A) <hr>
B) <line>
C) <hline>
D) <hl>
Answer: A

15. HTML comments start with:
A) <!--
B) //
C) #
D) /*
Answer: A

16. Which tag is used for creating an unordered (bulleted) list?
A)
B)
C)
D) <dl>
Answer: A

17. Which tag is used for table data (cell)?
A) <td>
B) <tr>
C) <th>
D) <table>
Answer: A

18. The correct way to make a checkbox in HTML is:
A) <input type="checkbox">
B) <checkbox>
C) <input checkbox>
D) <check>
Answer: A

19. Which tag is used to define emphasized text?
A) <i>
B)
C) Both A and B
D)
Answer: C

20. Which tag is used to define a division or section?
A)
B) <section>
C) Both A and B
D) <part>
Answer: C

CSS (Cascading Style Sheets)

21. What does CSS stand for?
A) Computer Style Sheets
B) Creative Style Sheets
C) Cascading Style Sheets
D) Colorful Style Sheets
Answer: C

22. Which HTML tag is used to link an external CSS file?
A) <css>
B) <style>
C) <link>
D) <script>
Answer: C

23. Where in an HTML document is the correct place to refer to an external CSS file?
A) At the end of the document
B) In the <body> section
C) In the <head> section
D) After <html>
Answer: C

24. Which property is used to change the text color in CSS?
A) font-color
B) color

C) text-color
D) fgcolor
Answer: B

25. How do you select an element with id "main" in CSS?
A) .main
B) #main
C) main
D) *main
Answer: B

26. How do you select all <p> elements in CSS?
A) p
B) .p
C) #p
D) *p
Answer: A

27. What is the correct CSS syntax to make all <h1> elements blue?
A) h1 {color: blue;}
B) h1:color=blue;
C) h1 {text-color: blue;}
D) h1 = blue;
Answer: A

28. Which property is used to change the background color?
A) bgcolor
B) color
C) background-color
D) background
Answer: C

29. Which CSS property is used to change the font of text?
A) font-style
B) font-family
C) font-weight
D) font-size
Answer: B

30. Which symbol is used for class selectors in CSS?
A) #
B) .
C) *
D) $
Answer: B

31. How do you add a comment in CSS?
A) // comment
B) /* comment */
C) <!-- comment -->
D) # comment
Answer: B

32. Which property is used to set the space between lines?
A) line-height
B) spacing
C) letter-spacing
D) word-spacing
Answer: A

33. How do you make text bold in CSS?
A) font-style: bold;
B) font-weight: bold;
C) style: bold;
D) text-style: bold;
Answer: B

34. How do you underline text in CSS?
A) text-decoration: underline;
B) underline: true;
C) font-underline: true;
D) decoration: underline;
Answer: A

35. Which property is used to align text to the center?
A) align: center;
B) text-align: center;
C) center: text;
D) text: center;
Answer: B

36. What is the default value of the position property in CSS?
A) fixed
B) relative
C) static
D) absolute
Answer: C

37. Which property is used to add shadow to text?
A) text-shadow
B) shadow
C) font-shadow
D) box-shadow
Answer: A

38. Which property is used to add space inside an element's border?
A) margin
B) padding
C) border-spacing

D) spacing
Answer: B

39. Which property is used to add space outside an element's border?
A) margin
B) padding
C) border-spacing
D) spacing
Answer: A

40. Which property is used to set the width of an element?
A) width
B) size
C) element-width
D) set-width
Answer: A

JavaScript Basics

41. What is JavaScript?
A) A programming language
B) A markup language
C) A style sheet language
D) A database
Answer: A

42. Where is JavaScript code usually placed in an HTML document?
A) <head> or <body>
B) <footer>
C) <title>
D) <meta>
Answer: A

43. How do you write a comment in JavaScript?
A) <!-- comment -->
B) // comment
C) # comment
D) /* comment */
Answer: B

44. Which tag is used to include JavaScript in HTML?
A) <js>
B) <javascript>
C) <script>
D) <code>
Answer: C

45. What is the correct syntax to display "Hello World" in an alert box?
A) alertBox("Hello World");
B) msg("Hello World");
C) alert("Hello World");
D) msgBox("Hello World");
Answer: C

46. Which symbol is used for single-line comments in JavaScript?
A) //
B) <!--
C) #
D) **
Answer: A

47. How do you declare a variable in JavaScript?
A) var name;
B) variable name;
C) v name;
D) declare name;
Answer: A

48. Which keyword is used to define a function in JavaScript?
A) function
B) func
C) define
D) method
Answer: A

49. How do you call a function named "myFunction"?
A) call myFunction();
B) myFunction();
C) call.function(myFunction);
D) function.myFunction();
Answer: B

50. What is the correct way to write an array in JavaScript?
A) var colors = "red", "green", "blue";
B) var colors = (1:"red", 2:"green", 3:"blue");
C) var colors = ["red", "green", "blue"];
D) var colors = 1 = ("red"), 2 = ("green"), 3 = ("blue");
Answer: C

51. Which event occurs when a user clicks on an HTML element?
A) onmouseover
B) onclick
C) onchange
D) onmouseclick

Answer: B

52. How do you write "Hello" to the browser console?

A) print("Hello");
B) console.log("Hello");
C) document.write("Hello");
D) alert("Hello");
Answer: B

53. Which operator is used to assign a value to a variable?

A) =
B) ==
C) ===
D) :=
Answer: A

54. How do you start a multi-line comment in JavaScript?

A) //
B) <!--
C) /*
D) #
Answer: C

55. What is the correct way to check if x is equal to 5 in JavaScript?

A) if x = 5
B) if (x == 5)
C) if x == 5 then
D) if (x = 5)
Answer: B

56. Which method is used to get an element by its ID in JavaScript?

A) getElementById()
B) getElement(id)
C) getId()
D) getById()
Answer: A

57. How do you create a function in JavaScript?

A) function myFunction() {}
B) create myFunction() {}
C) function:myFunction() {}
D) def myFunction() {}
Answer: A

58. Which of the following is a valid variable name in JavaScript?

A) 1name
B) name1
C) name-1
D) name 1
Answer: B

59. How do you add a single-line comment in JavaScript?

A) // comment
B) <!-- comment -->
C) # comment
D) /* comment */
Answer: A

60. Which operator is used to add values in JavaScript?

A) +
B) &
C) add
D) plus
Answer: A

Internet and WWW

61. What does WWW stand for?

A) World Wide Web
B) Wide World Web
C) Web World Wide
D) Web Wide World
Answer: A

62. Who invented the World Wide Web?

A) Bill Gates
B) Tim Berners-Lee
C) Steve Jobs
D) Larry Page
Answer: B

63. Which protocol is used to access web pages?

A) FTP
B) HTTP
C) SMTP
D) SNMP
Answer: B

64. What is the full form of URL?

A) Uniform Resource Locator
B) Uniform Reference Link
C) Universal Resource Link
D) Universal Reference Locator
Answer: A

65. Which device is required to connect to the Internet?

A) Switch
B) Modem
C) Printer

D) Scanner
Answer: B

66. What is a web browser?
A) A program to create web pages
B) A program to view web pages
C) A program to edit web pages
D) A program to design web pages
Answer: B

67. Which of the following is not a web browser?
A) Chrome
B) Firefox
C) Windows
D) Safari
Answer: C

68. Which protocol is used for secure communication over the web?
A) HTTP
B) FTP
C) HTTPS
D) SMTP
Answer: C

69. What is the main page of a website called?
A) Index page
B) Home page
C) Start page
D) Main page
Answer: B

70. Which of the following is a search engine?
A) Google
B) Facebook
C) Twitter
D) WhatsApp
Answer: A

71. Which of the following is not a search engine?
A) Bing
B) Yahoo
C) Instagram
D) DuckDuckGo
Answer: C

72. Which organization manages domain names on the Internet?
A) ICANN
B) IETF
C) IEEE
D) ISO
Answer: A

73. What is the function of DNS?
A) Assign IP addresses
B) Resolve domain names to IP addresses
C) Encrypt data
D) Connect LANs
Answer: B

74. Which of the following is not a top-level domain?
A) .com
B) .org
C) .net
D) .htm
Answer: D

75. What is the default port for HTTP?
A) 21
B) 23
C) 25
D) 80
Answer: D

76. What is the default port for HTTPS?
A) 80
B) 443
C) 21
D) 110
Answer: B

77. Which protocol is used for sending emails?
A) SMTP
B) POP3
C) HTTP
D) FTP
Answer: A

78. Which protocol is used for receiving emails?
A) SMTP
B) POP3
C) HTTP
D) FTP
Answer: B

79. Which protocol is used for transferring files?
A) FTP
B) SMTP
C) HTTP
D) SNMP
Answer: A

80. Which of the following is not a valid URL?
A) https://www.example.com

B) ftp://files.example.com
C) www.example.com
D) http://www.example.com
Answer: C

Applied & Miscellaneous

81. Which HTML tag is used to play video files?
A) <video>
B) <media>
C) <movie>
D) <play>
Answer: A

82. Which HTML tag is used to play audio files?
A) <audio>
B) <sound>
C) <music>
D) <play>
Answer: A

83. Which CSS property is used to change the size of text?
A) font-size
B) text-size
C) size
D) font-style
Answer: A

84. Which HTML tag is used for creating forms?
A) <form>
B) <input>
C) <button>
D) <submit>
Answer: A

85. Which attribute is used to specify the destination of a link in HTML?
A) href
B) src
C) link
D) url
Answer: A

86. Which tag is used to add a comment in HTML?
A) <!-- comment -->
B) // comment
C) # comment
D) /* comment */
Answer: A

87. Which CSS property is used to make the text italic?
A) font-style: italic;
B) font-italic: true;
C) style: italic;
D) text-style: italic;
Answer: A

88. Which JavaScript function is used to display a dialog box for input?
A) prompt()
B) alert()
C) input()
D) dialog()
Answer: A

89. Which HTML tag is used to display a numbered list?
A)
B)
C)
D) <dl>
Answer: A

90. Which of the following is not a valid CSS unit?
A) px
B) em
C) pt
D) kg
Answer: D

91. Which tag is used to define a footer for a document or section?
A) <footer>
B) <bottom>
C) <foot>
D) <section>
Answer: A

92. Which HTML tag is used to specify a header for a document or section?
A) <header>
B) <head>
C) <top>
D) <section>
Answer: A

93. Which CSS property is used to set the transparency of an element?
A) opacity
B) transparency
C) visible
D) alpha
Answer: A

94. Which JavaScript method is used to write content into an HTML document?
A) document.write()
B) write()
C) document.content()
D) document.print()
Answer: A
95. Which HTML tag is used to create a clickable button?
A) <button>
B) <input type="button">
C) Both A and B
D) <click>
Answer: C
96. Which CSS property is used to add a border to an element?
A) border
B) border-style
C) border-width
D) border-color
Answer: A
97. Which of the following is not a valid JavaScript data type?
A) Number
B) String
C) Boolean
D) Character
Answer: D
98. Which attribute is used to specify inline CSS styles?
A) style
B) css
C) class
D) id
Answer: A
99. Which tag is used to group inline-elements in HTML?
A)
B)
C) <section>
D) <group>
Answer: A
100. Which tag is used to group block-level elements in HTML?
A)
B)
C) <section>
D) <group>

Answer: A

Topic 8: MS Office Suite: Word, Excel, PowerPoint, and Practical Applications in Education

MS Word

1. What is the default file extension for Word 2016 documents?
A) .doc
B) .docx
C) .txt
D) .pdf
Answer: B
2. Which menu contains the 'Save As' option in MS Word?
A) File
B) Home
C) Insert
D) Review
Answer: A
3. Which shortcut key is used to copy selected text in Word?
A) Ctrl+X
B) Ctrl+C
C) Ctrl+V
D) Ctrl+Z
Answer: B
4. Which feature checks spelling as you type in Word?
A) AutoCorrect
B) Spell Check
C) Thesaurus
D) Grammar Check
Answer: B
5. What is the function of 'Mail Merge' in Word?
A) Formatting text
B) Combining letters with a data source
C) Printing documents
D) Saving files
Answer: B
6. Which tab is used to insert a table in a Word document?
A) File
B) Insert
C) Home
D) Review
Answer: B
7. Which key combination is used to make text bold?
A) Ctrl+I
B) Ctrl+U
C) Ctrl+B
D) Ctrl+P
Answer: C
8. What is the default orientation of a Word document?
A) Landscape
B) Portrait
C) Vertical
D) Horizontal
Answer: B
9. Which feature allows you to see how your document will look when printed?
A) Print Preview
B) Page Layout
C) Save As
D) View
Answer: A
10. Which option is used to add page numbers in Word?
A) Insert > Page Number
B) Home > Page Number
C) Layout > Number

D) Review > Insert
Answer: A

11. What is the maximum font size available in the font size drop-down in Word?
A) 72
B) 100
C) 96
D) 48
Answer: A

12. Which tool is used to find synonyms in Word?
A) Spell Check
B) Thesaurus
C) Grammar
D) Dictionary
Answer: B

13. Which shortcut is used to undo the last action in Word?
A) Ctrl+U
B) Ctrl+Y
C) Ctrl+Z
D) Ctrl+X
Answer: C

14. Which tab contains the 'Track Changes' feature?
A) Home
B) Review
C) Insert
D) View
Answer: B

15. What is the function of the 'Header' in Word?
A) Adds text at the top of each page
B) Adds text at the bottom
C) Adds footnotes
D) Adds endnotes
Answer: A

16. Which shortcut is used to select all content in a document?
A) Ctrl+S
B) Ctrl+A
C) Ctrl+P
D) Ctrl+F
Answer: B

17. Which key is used to create a new document in Word?
A) Ctrl+N
B) Ctrl+O
C) Ctrl+M
D) Ctrl+K
Answer: A

18. Which option is used to check the word count?
A) Review > Word Count
B) Home > Word Count
C) Insert > Word Count
D) File > Info
Answer: A

19. Which feature automatically moves text to the next line as you type?
A) Word Wrap
B) Line Break
C) Paragraph
D) Indent
Answer: A

20. Which option is used to insert a hyperlink in Word?
A) Insert > Hyperlink
B) Home > Link
C) Layout > Hyperlink
D) Review > Link
Answer: A

MS Excel

21. What is the default file extension for Excel 2016 workbooks?
A) .xls
B) .xlsx
C) .csv
D) .docx
Answer: B

22. Which symbol is used to start a formula in Excel?
A) =
B) +
C) -
D) *
Answer: A

23. Which function is used to sum a range of cells?
A) ADD
B) SUM
C) TOTAL
D) COUNT
Answer: B

24. What is a cell reference in Excel?
A) The cell's address (e.g., A1)
B) The cell's value
C) The cell's format
D) The cell's formula
Answer: A

25. Which shortcut key is used to save an Excel workbook?
A) Ctrl+P
B) Ctrl+S
C) Ctrl+N
D) Ctrl+O
Answer: B

26. Which function returns the average of a range of values?
A) AVERAGE
B) MEAN
C) MEDIAN
D) SUM
Answer: A

27. Which feature is used to quickly fill a series in Excel?
A) AutoFill
B) Fill Down
C) Fill Series
D) All of the above
Answer: D

28. Which function counts the number of numeric values in a range?
A) COUNT
B) COUNTA
C) COUNTIF
D) SUM
Answer: A

29. Which chart type is best for showing trends over time?
A) Pie
B) Line
C) Bar
D) Column
Answer: B

30. What is the intersection of a row and column called?
A) Field
B) Cell
C) Range
D) Data
Answer: B

31. Which function finds the highest value in a range?
A) MAX
B) MIN
C) HIGH
D) TOP
Answer: A

32. Which function is used to look up a value in a table?
A) LOOKUP
B) VLOOKUP
C) FIND
D) SEARCH
Answer: B

33. Which feature allows you to arrange data in ascending or descending order?
A) Sort
B) Filter
C) Group
D) Data Table
Answer: A

34. Which Excel feature is used to highlight cells based on conditions?
A) Conditional Formatting
B) Data Validation
C) Sorting
D) Filtering
Answer: A

35. Which key combination is used to insert a new worksheet?
A) Shift+F11
B) Ctrl+N
C) Ctrl+Shift+N
D) Alt+N
Answer: A

36. Which function returns the current date?
A) TODAY()
B) NOW()
C) DATE()
D) CURRENTDATE()
Answer: A

37. Which function counts all non-empty cells in a range?
A) COUNT
B) COUNTA
C) COUNTBLANK
D) COUNTIF
Answer: B

38. Which function is used to round numbers?
A) ROUND
B) ROUNDOFF
C) ROUNDUP
D) ROUNDDOWN
Answer: A
39. Which feature allows you to limit the type of data entered in a cell?
A) Data Validation
B) Conditional Formatting
C) Sorting
D) Filtering
Answer: A
40. Which tab contains the 'PivotTable' option?
A) Insert
B) Data
C) Home
D) Review
Answer: A

MS PowerPoint

41. What is the default file extension for PowerPoint 2016 presentations?
A) .ppt
B) .pptx
C) .pps
D) .pot
Answer: B
42. Which view is used to display slides one by one during a presentation?
A) Slide Sorter
B) Slide Show
C) Normal
D) Outline
Answer: B
43. Which shortcut starts a slideshow from the beginning?
A) F5
B) F2
C) F7
D) F9
Answer: A
44. Which tab is used to insert a new slide?
A) Home
B) Insert
C) Design
D) View
Answer: A
45. Which feature adds movement to text and objects on a slide?
A) Animation
B) Transition
C) Slide Show
D) Layout
Answer: A
46. Which feature adds movement between slides?
A) Animation
B) Transition
C) Slide Show
D) Layout
Answer: B
47. Which key is used to move to the next slide during a presentation?
A) Enter
B) Spacebar
C) Right Arrow
D) All of the above
Answer: D
48. Which option is used to insert a chart in PowerPoint?
A) Insert > Chart
B) Home > Chart
C) Design > Chart
D) Review > Chart
Answer: A
49. Which tab contains the 'Slide Master' option?
A) View
B) Insert
C) Design
D) Home
Answer: A
50. Which option is used to print handouts of slides?
A) File > Print
B) Home > Print
C) Insert > Print
D) Design > Print
Answer: A
51. Which feature is used to add speaker notes?
A) Notes Pane

B) Comment
C) Footer
D) Header
Answer: A

52. Which tab contains the 'SmartArt' option?
A) Insert
B) Design
C) Home
D) View
Answer: A

53. Which shortcut is used to duplicate a slide?
A) Ctrl+D
B) Ctrl+C
C) Ctrl+N
D) Ctrl+M
Answer: A

54. Which file format is used for a PowerPoint template?
A) .potx
B) .pptx
C) .ppsx
D) .docx
Answer: A

55. Which feature checks spelling in PowerPoint?
A) Spelling
B) Grammar
C) Proofing
D) Review
Answer: A

56. Which option is used to insert a video in PowerPoint?
A) Insert > Video
B) Home > Video
C) Design > Video
D) View > Video
Answer: A

57.Which tab contains the 'Header & Footer' option?
A) Insert
B) Design
C) Home
D) View
Answer: A

58.Which view displays all slides as thumbnails?
A) Slide Sorter
B) Slide Show
C) Outline
D) Normal
Answer: A

59.Which feature is used to rehearse timings for slides?
A) Slide Show > Rehearse Timings
B) Insert > Timings
C) Design > Timings
D) View > Timings
Answer: A

60.Which option is used to insert audio in PowerPoint?
A) Insert > Audio
B) Home > Audio
C) Design > Audio
D) View > Audio
Answer: A

Practical Applications in Education

61. Which MS Office application is best for creating student report cards?
A) Word
B) Excel
C) PowerPoint
D) Access
Answer: B

62. Which application is ideal for preparing classroom presentations?
A) Word
B) Excel
C) PowerPoint
D) Access
Answer: C

63. Which feature in Word helps teachers check for plagiarism?
A) Track Changes
B) Thesaurus
C) Smart Lookup
D) Compare
Answer: C

64. Which Excel feature is useful for analyzing student performance?
A) PivotTable
B) Mail Merge
C) Slide Show
D) SmartArt
Answer: A

65. Which PowerPoint feature can be used to create interactive quizzes?
A) Animation
B) Hyperlink
C) Slide Master
D) Chart
Answer: B
66. Which application is best for maintaining student attendance records?
A) Word
B) Excel
C) PowerPoint
D) Access
Answer: B
67. Which feature in Word allows collaborative editing?
A) Track Changes
B) Comments
C) Share
D) All of the above
Answer: D
68. Which Excel function helps in calculating average marks?
A) SUM
B) AVERAGE
C) MAX
D) MIN
Answer: B
69. Which PowerPoint feature is useful for adding visual interest to lessons?
A) Transitions
B) Animations
C) Both A and B
D) None
Answer: C
70. Which application is best for creating certificates for students?
A) Word
B) Excel
C) PowerPoint
D) Access
Answer: A
71. Which feature in Excel helps in restricting data entry to specific values?
A) Data Validation
B) Conditional Formatting
C) Sorting
D) Filtering
Answer: A
72. Which PowerPoint feature allows you to record narration?
A) Record Slide Show
B) Animation
C) Transition
D) Slide Sorter
Answer: A
73. Which application helps in preparing question papers?
A) Word
B) Excel
C) PowerPoint
D) Access
Answer: A
74. Which feature in Word helps in creating bibliographies?
A) References
B) Review
C) Mailings
D) View
Answer: A
75. Which Excel feature is useful for marking student absences automatically?
A) Conditional Formatting
B) Data Validation
C) PivotTable
D) Sorting
Answer: A
76. Which PowerPoint view is best for rearranging slides?
A) Slide Sorter
B) Normal
C) Outline
D) Slide Show
Answer: A
77. Which application is best for preparing newsletters?
A) Word
B) Excel
C) PowerPoint
D) Access
Answer: A
78. Which feature in Excel can be used for budgeting school expenses?
A) Formulas
B) Charts
C) Both A and B

D) None
Answer: C

79. Which PowerPoint feature allows for group presentations?
A) Collaboration
B) Presenter View
C) Slide Show
D) Slide Master
Answer: A

80. Which feature in Word helps in creating a table of contents?
A) References
B) Insert
C) Layout
D) Review
Answer: A

Miscellaneous & PYQs

81. Which shortcut is used to print a document in any MS Office application?
A) Ctrl+P
B) Ctrl+O
C) Ctrl+S
D) Ctrl+N
Answer: A

82. Which feature in Word helps in correcting spelling errors?
A) Spell Check
B) Grammar Check
C) Thesaurus
D) Word Count
Answer: A

83. Which Excel function is used to count blank cells?
A) COUNT
B) COUNTA
C) COUNTBLANK
D) COUNTIF
Answer: C

84. Which shortcut is used to open a new presentation in PowerPoint?
A) Ctrl+N
B) Ctrl+O
C) Ctrl+P
D) Ctrl+M
Answer: A

85. Which feature in Word helps in creating labels for envelopes?
A) Mail Merge
B) Table
C) Header
D) Footer
Answer: A

86. Which Excel chart is best for showing parts of a whole?
A) Pie Chart
B) Line Chart
C) Bar Chart
D) Column Chart
Answer: A

87. Which PowerPoint feature is used to insert pre-designed slide layouts?
A) Slide Master
B) Themes
C) Design
D) Layout
Answer: D

88. Which shortcut is used to save a document in any MS Office application?
A) Ctrl+S
B) Ctrl+N
C) Ctrl+P
D) Ctrl+O
Answer: A

89. Which feature in Word is used for creating footnotes?
A) References
B) Review
C) Insert
D) Layout
Answer: A

90. Which Excel function checks a condition and returns one value if true, and another if false?
A) IF
B) COUNTIF
C) SUMIF
D) VLOOKUP
Answer: A

91. Which PowerPoint feature is used to add a background image to slides?
A) Design > Format Background
B) Insert > Picture
C) Home > Background

D) View > Background
Answer: A

92. Which application is best for statistical analysis of student data?
A) Excel
B) Word
C) PowerPoint
D) Access
Answer: A

93. Which feature in Word is used for inserting citations?
A) References
B) Review
C) Layout
D) Insert
Answer: A

94. Which Excel feature is used to combine data from multiple sheets?
A) Consolidate
B) Merge
C) Sort
D) Filter
Answer: A

95. Which PowerPoint feature is used to insert a screenshot?
A) Insert > Screenshot
B) Home > Screenshot
C) Design > Screenshot
D) View > Screenshot
Answer: A

96. Which shortcut is used to close an open document in MS Office?
A) Ctrl+W
B) Ctrl+Q
C) Ctrl+E
D) Ctrl+R
Answer: A

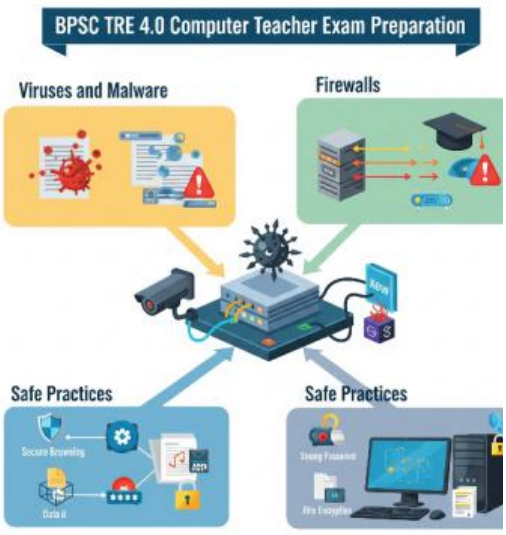
97. Which Excel function is used to find the lowest value in a range?
A) MIN
B) MAX
C) LOW
D) SMALL
Answer: A

98. Which feature in Word helps in translating text?
A) Translate
B) Thesaurus
C) Dictionary
D) Spell Check
Answer: A

99. Which PowerPoint feature is used to insert shapes?
A) Insert > Shapes
B) Home > Shapes
C) Design > Shapes
D) View > Shapes
Answer: A

100. Which application is best for preparing a school timetable?
A) Excel
B) Word
C) PowerPoint
D) Access
Answer: A

Topic 9: Computer Security: Viruses, Malware, Firewalls, Safe Practices"



Viruses and Malware

1. What is a computer virus?
A) Hardware device
B) Malicious software
C) Operating system
D) Application software
Answer: B
2. Which of the following is NOT a type of malware?
A) Worm
B) Trojan horse
C) Firewall
D) Ransomware
Answer: C
3. A program that replicates itself and spreads to other computers is called:
A) Virus
B) Worm
C) Firewall
D) Antivirus
Answer: B
4. Which malware disguises itself as legitimate software?
A) Trojan horse
B) Worm
C) Spyware
D) Adware
Answer: A
5. Which malware is designed to collect user information secretly?
A) Spyware
B) Adware
C) Ransomware
D) Rootkit
Answer: A
6. Which malware locks your files and demands payment?
A) Adware
B) Ransomware
C) Trojan
D) Worm
Answer: B
7. What is the main purpose of adware?
A) Steal data
B) Display unwanted ads
C) Encrypt files
D) Delete files
Answer: B
8. Which malware records keystrokes to steal passwords?
A) Keylogger
B) Rootkit
C) Worm
D) Adware
Answer: A
9. Which malware can hide itself and other malware from detection?
A) Rootkit
B) Worm
C) Spyware
D) Adware
Answer: A
10. Which of the following is NOT a way viruses spread?
A) USB drives
B) Email attachments

C) Downloading files
D) Using a firewall
Answer: D

Antivirus and Protection

11. What is the main function of antivirus software?
A) Create viruses
B) Detect and remove malware
C) Speed up the computer
D) Backup data
Answer: B
12. Which of the following is NOT an antivirus software?
A) Avast
B) Norton
C) Windows Defender
D) Excel
Answer: D
13. Regularly updating antivirus software is important because:
A) It increases computer speed
B) It keeps the software effective against new threats
C) It adds new games
D) It changes the user interface
Answer: B
14. What should you do if your antivirus detects a threat?
A) Ignore it
B) Delete or quarantine the file
C) Uninstall antivirus
D) Turn off the computer
Answer: B
15. Which of the following is a sign of virus infection?
A) Slow performance
B) Unexpected pop-ups
C) Files missing or corrupted
D) All of the above
Answer: D
16. What is quarantine in antivirus software?
A) Deleting files
B) Isolating suspicious files
C) Updating software
D) Scanning hardware
Answer: B
17. Which of the following is a good practice to avoid malware?
A) Download software from official sites
B) Click on all email links
C) Use pirated software
D) Disable antivirus
Answer: A
18. Which type of scan checks the whole system for threats?
A) Full scan
B) Quick scan
C) Custom scan
D) Partial scan
Answer: A
19. Which of the following is NOT a preventive measure against viruses?
A) Regular backups
B) Using strong passwords
C) Disabling firewall
D) Updating software
Answer: C
20. What is the first action after detecting ransomware?
A) Pay the ransom
B) Disconnect from the network
C) Delete all files
D) Ignore the warning
Answer: B

Firewalls

21. What is a firewall?
A) Antivirus software
B) Security device/software that filters network traffic
C) Operating system
D) Database
Answer: B
22. Which of the following is NOT a type of firewall?
A) Hardware firewall
B) Software firewall
C) Human firewall
D) Cloud firewall
Answer: C
23. What is the main function of a firewall?
A) Block unauthorized access

B) Create viruses
C) Format hard disk
D) Increase RAM
Answer: A

24. Which firewall is installed on individual computers?
A) Hardware firewall
B) Software firewall
C) Network firewall
D) None
Answer: B

25. Where is a hardware firewall usually placed?
A) Between the computer and the printer
B) Between the network and the internet
C) Inside the CPU
D) In the RAM
Answer: B

26. Which of the following is a popular software firewall for Windows?
A) Windows Firewall
B) Excel
C) BIOS
D) Chrome
Answer: A

27. Firewalls can be used to:
A) Block specific websites
B) Allow only trusted applications
C) Prevent hackers
D) All of the above
Answer: D

28. What does a firewall NOT do?
A) Prevent unauthorized access
B) Scan for viruses
C) Filter network traffic
D) Block suspicious connections
Answer: B

29. What is the default firewall in Windows OS?
A) Windows Defender
B) Windows Firewall
C) McAfee
D) AVG
Answer: B

30. Which layer of the OSI model do firewalls primarily operate at?
A) Physical
B) Network
C) Application
D) All of the above
Answer: D

Safe Practices

31. What is the best way to create a strong password?
A) Use your name
B) Use "123456"
C) Use a mix of letters, numbers, and symbols
D) Use only lowercase letters
Answer: C

32. Which of the following is NOT a safe internet practice?
A) Clicking on suspicious links
B) Using HTTPS websites
C) Logging out after use
D) Updating software regularly
Answer: A

33. What should you do before opening an email attachment?
A) Check the sender
B) Scan with antivirus
C) Be cautious with unknown sources
D) All of the above
Answer: D

34. Why should you avoid using pirated software?
A) It is illegal
B) It may contain malware
C) No official support
D) All of the above
Answer: D

35. What is phishing?
A) Fishing in a river
B) Attempt to steal personal information through fake emails/websites
C) Encrypting files
D) Installing antivirus
Answer: B

36. What is the safest way to use public Wi-Fi?
A) Use a VPN
B) Share personal info
C) Disable firewall
D) Turn off antivirus
Answer: A

37. Which of the following should you NOT share online?
A) Passwords
B) Bank details
C) Personal identification
D) All of the above
Answer: D
38. What is two-factor authentication?
A) Using two passwords
B) Using password and another verification method
C) Using two devices
D) Using two browsers
Answer: B
39. What should you do if you suspect your computer is infected?
A) Run antivirus scan
B) Disconnect from the internet
C) Seek expert help
D) All of the above
Answer: D
40. Which of these is a good backup practice?
A) Backup regularly
B) Use external or cloud storage
C) Test backups
D) All of the above
Answer: D

Network Security and Threats

41. What is a hacker?
A) Someone who repairs computers
B) Someone who illegally accesses systems
C) Antivirus software
D) A type of malware
Answer: B
42. What is ethical hacking?
A) Hacking for fun
B) Authorized hacking to find vulnerabilities
C) Creating viruses
D) Illegal activity
Answer: B
43. What is the purpose of a security patch?
A) To fix vulnerabilities
B) To slow down the system
C) To delete files
D) To install games
Answer: A
44. What is social engineering?
A) Building bridges
B) Manipulating people to reveal confidential info
C) Programming
D) Installing antivirus
Answer: B
45. What is spam?
A) Unwanted emails
B) Antivirus
C) Backup
D) Firewall
Answer: A
46. Which of the following is NOT a cyber threat?
A) Virus
B) Worm
C) Firewall
D) Trojan
Answer: C
47. What is the main goal of cyber security?
A) To create malware
B) To protect data and systems
C) To slow down computers
D) To delete files
Answer: B
48. Which of the following is NOT a physical security measure?
A) Locking computers
B) Using antivirus
C) Restricting access to server rooms
D) Security cameras
Answer: B
49. What is a botnet?
A) Network of infected computers
B) Antivirus software
C) Firewall
D) Backup system
Answer: A
50. What is the first step in responding to a data breach?
A) Ignore it
B) Identify and contain the breach
C) Delete all data
D) Pay ransom
Answer: B

Backup and Recovery

51. What is the purpose of data backup?
A) To delete files
B) To recover data after loss
C) To slow down the computer
D) To install software
Answer: B
52. Which of the following is NOT a backup device?
A) External hard drive
B) USB flash drive
C) Printer
D) Cloud storage
Answer: C
53. How often should important data be backed up?
A) Once a year
B) Regularly
C) Never
D) Only after a virus attack
Answer: B
54. What is cloud backup?
A) Storing data on remote servers
B) Printing documents
C) Installing antivirus
D) Formatting hard disks
Answer: A
55. What is the first step after data loss?
A) Panic
B) Try to recover from backup
C) Delete more files
D) Ignore the problem
Answer: B
56. Which of the following is NOT a type of backup?
A) Full backup
B) Incremental backup
C) Differential backup
D) Virtual backup
Answer: D
57. What is restore?
A) Deleting files
B) Recovering data from backup
C) Formatting drives
D) Installing software
Answer: B
58. Which backup method saves only changed files since the last backup?
A) Full backup
B) Incremental backup
C) Differential backup
D) Manual backup
Answer: B
59. What is the main advantage of cloud backup?
A) Accessible from anywhere
B) Slower access
C) Less secure
D) More expensive
Answer: A
60. What should be done after restoring data from a backup?
A) Check data integrity
B) Ignore errors
C) Delete backup
D) Turn off computer
Answer: A

Email and Internet Safety

61. What is phishing?
A) Sending fake emails to steal information
B) Installing antivirus
C) Encrypting files
D) Formatting hard disk
Answer: A
62. Which of the following is a sign of a phishing email?
A) Urgent request for personal info
B) Suspicious links
C) Spelling errors
D) All of the above
Answer: D
63. What is the best way to avoid phishing?
A) Ignore all emails
B) Verify sender and links
C) Click on every link
D) Share passwords
Answer: B
64. What is spam?
A) Unwanted emails
B) Antivirus
C) Backup
D) Firewall
Answer: A
65. What is the purpose of email filters?

A) Block spam and phishing emails
B) Send emails
C) Format emails
D) Encrypt emails
Answer: A

66. What should you do if you receive a suspicious email?
A) Click all links
B) Delete or report it
C) Reply with personal info
D) Forward to everyone
Answer: B

67. Which of the following is NOT recommended for safe browsing?
A) Use strong passwords
B) Use public Wi-Fi for banking
C) Enable two-factor authentication
D) Use secure websites
Answer: B

68. What is HTTPS?
A) Secure version of HTTP
B) Email protocol
C) Virus
D) Backup method
Answer: A

69. What does a padlock symbol in the browser mean?
A) The site is secure
B) The site is unsafe
C) The site is slow
D) The site is under maintenance
Answer: A

70. What is the safest way to download files?
A) From trusted sources
B) From random pop-ups
C) From unknown emails
D) From pirated websites
Answer: A

Mobile and Device Security

71. What is the best way to secure a smartphone?
A) Use a password or PIN
B) Share it with everyone
C) Disable security features
D) Never update apps
Answer: A

72. Which of the following can protect against mobile malware?
A) Download apps from official stores
B) Install apps from unknown sources
C) Ignore updates
D) Disable antivirus
Answer: A

73. What is the purpose of app permissions?
A) Control app access to data and features
B) Increase phone speed
C) Delete apps
D) Install viruses
Answer: A

74. Which of the following is NOT a mobile security risk?
A) Outdated apps
B) Weak passwords
C) Using official app stores
D) Public Wi-Fi
Answer: C

75. What should you do before selling your old phone?
A) Delete all data and reset
B) Give it away as is
C) Share passwords
D) Leave accounts logged in
Answer: A

76. Which of the following is NOT a safe practice for mobile devices?
A) Lock your phone
B) Install updates
C) Use public Wi-Fi for sensitive tasks
D) Backup data
Answer: C

77. What is SIM card lock?
A) Locks the SIM with a PIN
B) Deletes all contacts
C) Installs antivirus
D) Formats the phone
Answer: A

78. What is the main risk of public charging stations?
A) Juice jacking (data theft)
B) Faster charging
C) Free internet
D) More storage
Answer: A

79. What is Bluetooth security risk?

A) Unauthorized access via Bluetooth
B) Faster internet
C) Better sound quality
D) More battery life
Answer: A

80. What is the best way to secure wireless networks?
A) Use strong Wi-Fi passwords
B) Leave Wi-Fi open
C) Share passwords
D) Disable encryption
Answer: A

Educational and Practical Scenarios

81. Why is computer security important in schools?
A) To protect student and staff data
B) To prevent cyberbullying
C) To ensure safe learning
D) All of the above
Answer: D

82. Which of the following is a safe practice for teachers using school computers?
A) Lock computer when not in use
B) Share passwords with students
C) Install unauthorized software
D) Disable antivirus
Answer: A

83. What should teachers do before using USB drives in school computers?
A) Scan for viruses
B) Format the drive
C) Share with everyone
D) Ignore security
Answer: A

84. What is the role of firewalls in school networks?
A) Block harmful websites
B) Prevent hacking
C) Filter network traffic
D) All of the above
Answer: D

85. Which is NOT a safe email practice for teachers?
A) Open attachments from unknown senders
B) Use strong passwords
C) Log out after use
D) Report suspicious emails
Answer: A

86. What is the best way to handle sensitive student data?
A) Store securely and backup
B) Share on social media
C) Email to everyone
D) Leave on public computers
Answer: A

87. What should be done if a school computer is infected?
A) Inform IT staff
B) Run antivirus
C) Disconnect from network
D) All of the above
Answer: D

88. What is the use of password-protected files?
A) Restrict unauthorized access
B) Make files larger
C) Slow down computers
D) Delete files
Answer: A

89. Why should teachers use official software?
A) More secure
B) Legal
C) Regular updates
D) All of the above
Answer: D

90. What is the best way to educate students about cyber safety?
A) Conduct awareness sessions
B) Ignore the topic
C) Share passwords
D) Encourage risky behavior
Answer: A

Miscellaneous and PYQs

91. What is the main reason for regular software updates?
A) Add new features
B) Fix security vulnerabilities
C) Change the color scheme
D) Increase file size
Answer: B

92. Which of the following is NOT a type of malware?
A) Virus

B) Worm
C) Firewall
D) Spyware
Answer: C

93. Which is the best way to protect personal data online?
A) Use strong passwords
B) Share on social media
C) Ignore security
D) Use public Wi-Fi
Answer: A

94. What is cyberbullying?
A) Online harassment
B) Antivirus software
C) Data backup
D) Firewall
Answer: A

95. What is the use of encryption?
A) Protect data by making it unreadable
B) Delete data
C) Speed up computers
D) Install malware
Answer: A

96. What is the first step in case of online fraud?
A) Report to authorities
B) Ignore
C) Pay the fraudster
D) Delete evidence
Answer: A

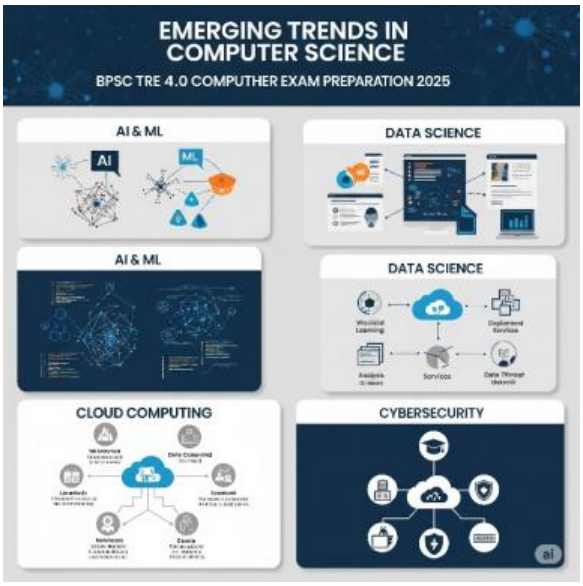
97. Which of the following is NOT a function of antivirus?
A) Detect malware
B) Remove viruses
C) Backup data
D) Quarantine threats
Answer: C

98. What is the use of a password manager?
A) Store and manage passwords securely
B) Share passwords
C) Create viruses
D) Slow down the computer
Answer: A

99. What is the best way to prevent unauthorized access to computers?
A) Use strong passwords and lock screens
B) Share passwords
C) Disable security
D) Use public computers
Answer: A

100. Which of the following is NOT a benefit of computer security?
A) Protects data
B) Prevents unauthorized access
C) Encourages malware
D) Ensures privacy
Answer: C

Topic 10: ICT in Education: Role of computers in teaching, e-learning tools, digital classroom management



Role of Computers in Teaching

1. What does ICT stand for in education?
A) Information and Communication Technology
B) Indian Computer Technology
C) International Communication Tool
D) Integrated Computer Teaching
Answer: A

2. Which of the following is NOT a benefit of using computers in teaching?
A) Interactive learning
B) Limited access to information
C) Multimedia presentations
D) Efficient assessment
Answer: B

3. Computers help in personalized learning by:
A) Providing the same content to all
B) Adapting content to student's pace
C) Limiting resources
D) None
Answer: B

4. Which software is commonly used for creating lesson plans?
A) MS Word
B) MS Excel
C) Photoshop
D) VLC Player
Answer: A

5. Which of the following is a practical use of computers in schools?
A) Maintaining student records
B) Drawing only
C) Playing games only
D) None
Answer: A

6. Which device is essential for digital classrooms?
A) Projector
B) Typewriter
C) Overhead projector
D) Chalkboard
Answer: A

7. What is the main advantage of using multimedia in teaching?
A) Makes lessons boring
B) Enhances understanding
C) Reduces interaction
D) None
Answer: B

8. Computers help teachers to:
A) Prepare e-content
B) Analyze student performance
C) Communicate with parents
D) All of the above
Answer: D

9. What is blended learning?
A) Only online teaching
B) Only classroom teaching
C) Combination of online and classroom teaching
D) Teaching with books only
Answer: C

10. Which of the following is NOT a use of computers in education?
A) E-books
B) Online quizzes
C) Manual attendance
D) Virtual labs
Answer: C

E-Learning Tools

11. What is an LMS?
A) Learning Management System
B) Local Management Service
C) Language Management System
D) Learning Machine System
Answer: A
12. Which of the following is a popular LMS?
A) Google Classroom
B) MS Paint
C) Notepad
D) Calculator
Answer: A
13. Which tool is used for real-time student assessment?
A) Kahoot!
B) Paint
C) WordPad
D) MS DOS
Answer: A
14. Which tool allows collaborative document editing?
A) Google Docs
B) MS Paint
C) VLC Player
D) Calculator
Answer: A
15. What is the main function of Quizizz?
A) Online quizzes
B) Drawing
C) Video editing
D) Audio recording
Answer: A
16. Which tool is used for digital whiteboarding?
A) Classroomscreen
B) Notepad
C) Excel
D) Word
Answer: A
17. Which of the following is NOT an e-learning tool?
A) Socrative
B) Padlet
C) Blackboard
D) Typewriter
Answer: D
18. What is the use of Edulastic?
A) Online assessment
B) Video calls
C) Image editing
D) File compression
Answer: A
19. Which platform is best for sharing assignments and feedback?
A) Google Classroom
B) Windows Media Player
C) MS Paint
D) Calculator
Answer: A
20. Which tool helps in behavior management in digital classrooms?
A) ClassDojo
B) Excel
C) Word
D) Paint
Answer: A

Digital Classroom Management

21. What is digital classroom management?
A) Using technology to organize and monitor classrooms
B) Manual attendance
C) Only teaching with chalk
D) None
Answer: A
22. Which tool is used for monitoring student device usage?
A) Mobile Device Management (MDM)
B) Paint
C) Word
D) Excel
Answer: A
23. What is the benefit of using an LMS for classroom management?
A) Centralizes assignments and grades

B) Makes teaching difficult
C) Reduces transparency
D) Increases paperwork
Answer: A

24. Which tool is used for real-time communication in digital classrooms?
A) Microsoft Teams
B) Notepad
C) Paint
D) Calculator
Answer: A

25. What is the advantage of using digital attendance systems?
A) Fast and accurate
B) Time-consuming
C) Error-prone
D) None
Answer: A

26. Which of the following is NOT a digital classroom management tool?
A) ClassDojo
B) Google Classroom
C) Blackboard
D) Manual register
Answer: D

27. What is the use of behavior tracking tools?
A) Encourage positive behavior
B) Discourage learning
C) Increase absenteeism
D) None
Answer: A

28. What is the main aim of digital classroom management?
A) Efficient learning environment
B) Increase confusion
C) Reduce participation
D) None
Answer: A

29. Which tool is used for sharing resources and announcements?
A) LMS
B) Paint
C) Calculator
D) Notepad
Answer: A

30. What is the benefit of using online gradebooks?
A) Real-time access to grades
B) Only teachers can see
C) Only students can see
D) None
Answer: A

ICT Concepts and General Applications

31. Which of the following is NOT an ICT tool?
A) Computer
B) Smartphone
C) Chalkboard
D) Tablet
Answer: C

32. What is the use of assistive technology in education?
A) Helps students with special needs
B) Only for teachers
C) For entertainment
D) None
Answer: A

33. Which tool helps convert handwriting to digital text?
A) Livescribe smartpen
B) Paint
C) WordPad
D) Calculator
Answer: A

34. What is the benefit of using digital quizzes?
A) Instant feedback
B) Delayed results
C) No feedback
D) None
Answer: A

35. Which ICT tool is used for video conferencing?
A) Zoom
B) Notepad
C) Paint
D) Calculator
Answer: A

36. What is the function of Padlet in education?
A) Collaborative boards
B) Only for drawing
C) Only for video
D) None
Answer: A

37. Which of the following is a benefit of e-learning?
A) Flexible learning
B) Limited access
C) No feedback
D) None
Answer: A
38. Which technology helps in remote learning?
A) Internet
B) Manual register
C) Chalkboard
D) None
Answer: A
39. Which of the following is NOT a benefit of ICT in education?
A) Enhances engagement
B) Limits access to information
C) Supports inclusive education
D) Enables distance learning
Answer: B
40. What is flipped classroom?
A) Students learn at home, practice in class
B) Only teacher teaches
C) Only students teach
D) None
Answer: A

Previous Year and Expected Questions

41. Which tool is used for creating presentations in digital classrooms?
A) PowerPoint
B) Paint
C) Notepad
D) Calculator
Answer: A
42. Which of the following is a digital assessment tool?
A) Quizizz
B) Paint
C) WordPad
D) Calculator
Answer: A
43. Which platform is used for collaborative spreadsheet work?
A) Google Sheets
B) Paint
C) VLC
D) Notepad
Answer: A
44. Which of the following is a benefit of using e-books?
A) Portable and accessible
B) Heavy and bulky
C) Only available in libraries
D) None
Answer: A
45. Which device is used for scanning documents?
A) Scanner
B) Printer
C) Monitor
D) Keyboard
Answer: A
46. What is the use of digital projectors in classrooms?
A) Display multimedia content
B) Only for sound
C) Only for printing
D) None
Answer: A
47. Which of the following supports group discussion in online classes?
A) Discussion forums
B) Paint
C) Calculator
D) WordPad
Answer: A
48. Which tool is used for creating and sharing mind maps?
A) MindMeister
B) Paint
C) Excel
D) Notepad
Answer: A
49. What is the function of Google Forms in education?
A) Online surveys and quizzes
B) Drawing
C) Video editing
D) None
Answer: A
50. Which of the following is NOT a collaborative tool?
A) Google Docs

B) Padlet
C) MS Paint
D) Microsoft Teams
Answer: C

Digital Literacy and Safe Practices

51. What is digital literacy?
A) Ability to use digital tools safely and effectively
B) Only reading books
C) Only using chalkboard
D) None
Answer: A
52. Which of the following is NOT a safe digital practice for students?
A) Sharing passwords
B) Using strong passwords
C) Reporting cyberbullying
D) Respecting privacy
Answer: A
53. What is cyberbullying?
A) Online harassment
B) Printing documents
C) Drawing online
D) None
Answer: A
54. Which tool helps in monitoring digital behavior?
A) ClassDojo
B) Paint
C) Notepad
D) Calculator
Answer: A
55. What is the use of parental controls?
A) Restrict inappropriate content
B) Increase screen time
C) Reduce learning
D) None
Answer: A
56. Which of the following is NOT a benefit of digital classroom management?
A) Efficient monitoring
B) Increased paperwork
C) Better communication
D) Real-time feedback
Answer: B
57. What is the use of cloud storage in education?
A) Access files from anywhere
B) Only store locally
C) Increase risk
D) None
Answer: A
58. Which of the following is a secure way to share resources?
A) Using LMS
B) Public forums
C) Social media
D) None
Answer: A
59. What is the main purpose of digital citizenship education?
A) Teach responsible online behavior
B) Ignore digital rules
C) Promote unsafe practices
D) None
Answer: A
60. Which of the following is NOT a digital communication tool?
A) Email
B) SMS
C) Chalkboard
D) Video call
Answer: C

ICT Policy and Trends

61. Which initiative promotes ICT in Indian schools?
A) Digital India
B) Swachh Bharat
C) Make in India
D) None
Answer: A
62. What is the role of NIOS in ICT education?
A) Provides online courses and resources
B) Only conducts exams
C) Only prints books
D) None
Answer: A
63. Which of the following is a government e-learning platform?
A) SWAYAM
B) Paint

C) Notepad
D) Calculator
Answer: A

64. What is the use of Diksha portal?
A) Digital resources for teachers and students
B) Only for games
C) Only for drawing
D) None
Answer: A

65. Which of the following is NOT a trend in digital education?
A) Virtual classrooms
B) Manual registers
C) AI-based learning
D) Gamification
Answer: B

66. What is the use of AI in education?
A) Personalized learning
B) Only for entertainment
C) Reduces learning
D) None
Answer: A

67. Which of the following is an example of gamification in education?
A) Using points and badges
B) Only lectures
C) Only exams
D) None
Answer: A

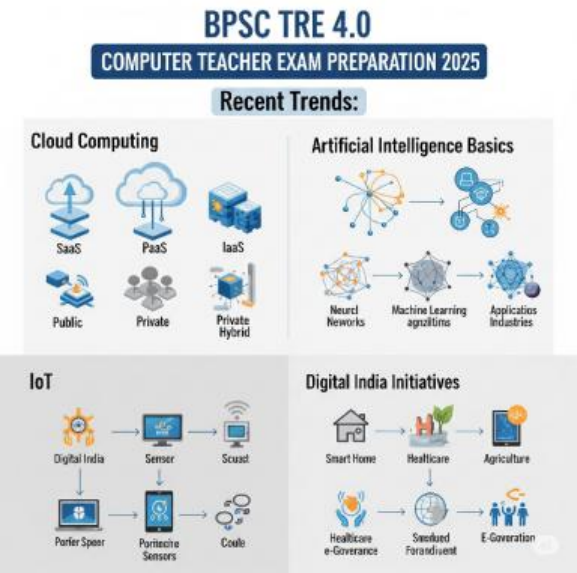
68. What is the use of virtual labs?
A) Simulate experiments online
B) Only for writing
C) Only for drawing
D) None
Answer: A

69. Which of the following is a benefit of MOOCs?
A) Access to quality courses for all
B) Only for teachers
C) Only for local students
D) None
Answer: A

70. What is the main challenge of ICT in rural education?
A) Lack of infrastructure
B) Too many computers
C) Overuse of internet
D) None

Answer: A

Topic 11: Recent Trends: Cloud Computing, Artificial Intelligence Basics, IoT, Digital India Initiatives



Cloud Computing

1. What is cloud computing?
A) Using remote servers to store/process data
B) Using floppy disks
C) Sharing files via Bluetooth
D) Using only local computers
Answer: A

2. Which of the following is NOT a cloud service model?
A) IaaS
B) PaaS
C) SaaS
D) BIOS
Answer: D

3. Which company is NOT a major cloud computing provider?
A) Amazon
B) Google
C) Microsoft
D) Nokia
Answer: D

4. What does SaaS stand for?
A) Software as a Service
B) Storage as a Service
C) System as a Service
D) Server as a Service
Answer: A

5. Which cloud model combines public and private clouds?
A) Hybrid cloud
B) Private cloud
C) Public cloud
D) Distributed cloud
Answer: A

6. What is the main advantage of cloud computing in education?
A) Expensive hardware
B) Scalability and remote access
C) Only offline access
D) Manual grading
Answer: B

7. Which of the following is an example of SaaS?
A) Google Docs
B) Windows OS
C) BIOS
D) Hard disk
Answer: A

8. What is IaaS?
A) Infrastructure as a Service
B) Internet as a Service
C) Input as a Service
D) Instruction as a Service
Answer: A

9. Which service provides a platform for developers to build applications?
A) SaaS
B) PaaS
C) IaaS

D) NaaS
Answer: B
10. Which of the following is NOT a benefit of cloud computing?
A) On-demand resource availability
B) High initial hardware cost
C) Pay-as-you-go pricing
D) Easy collaboration
Answer: B

Artificial Intelligence (AI) Basics

11. What is Artificial Intelligence?
A) Machines performing tasks that require human intelligence
B) Only storing data
C) Only hardware design
D) Only networking
Answer: A
12. Which of the following is NOT a domain of AI?
A) Natural Language Processing
B) Computer Vision
C) Data Entry
D) Robotics
Answer: C
13. Which is an example of AI in daily life?
A) Voice assistants
B) Manual typewriter
C) Landline phone
D) Mechanical clock
Answer: A
14. What is Machine Learning?
A) Machines learning from data
B) Machines only storing data
C) Manual data entry
D) Only hardware upgrades
Answer: A
15. Which is NOT a type of AI?
A) Narrow AI
B) General AI
C) Superintelligent AI
D) Mechanical AI
Answer: D
16. Which of the following is a subset of AI?
A) Machine Learning
B) Networking
C) Database
D) Assembly Language
Answer: A
17. What is the main purpose of Natural Language Processing?
A) Understand human language
B) Store images
C) Encrypt data
D) Manage networks
Answer: A
18. Which of the following is an AI application in education?
A) Automated grading
B) Manual attendance
C) Chalkboard writing
D) Only oral exams
Answer: A
19. Which is a popular programming language for AI?
A) Python
B) COBOL
C) Assembly
D) BASIC
Answer: A
20. What is Deep Learning?
A) Using neural networks for complex tasks
B) Only storing data
C) Only hardware upgrades
D) Manual calculations
Answer: A

IoT (Internet of Things)

21. What does IoT stand for?
A) Internet of Things
B) Input of Technology
C) Internet of Technology
D) Input of Things
Answer: A
22. Which of the following is an IoT device?
A) Smart bulb
B) Typewriter
C) Chalkboard
D) Manual clock
Answer: A
23. What is the main function of IoT?
A) Connecting physical devices to the internet

B) Only storing data
C) Only printing documents
D) Only voice calls
Answer: A

24. Which protocol is commonly used in IoT devices?
A) MQTT
B) HTTP
C) SMTP
D) POP3
Answer: A

25. Which of the following is NOT an application of IoT in education?
A) Smart attendance
B) Automated lighting
C) Manual registers
D) Real-time monitoring
Answer: C

26. What is the benefit of IoT in smart classrooms?
A) Real-time data and automation
B) Manual grading
C) Only offline lessons
D) No data analysis
Answer: A

27. Which of the following is a challenge for IoT?
A) Security and privacy
B) Manual attendance
C) Chalkboard writing
D) No connectivity
Answer: A

28. What is an example of IoT in daily life?
A) Smartwatch
B) Manual diary
C) Chalkboard
D) Pen
Answer: A

29. Which technology supports IoT for faster connectivity?
A) 5G
B) Dial-up
C) Typewriter
D) Floppy disk
Answer: A

30. Which of the following is a layer in IoT architecture?
A) Perception layer
B) Application layer
C) Network layer
D) All of the above
Answer: D

Digital India Initiatives

31. What is the main aim of Digital India?
A) Digital empowerment of citizens
B) Only urban development
C) Only hardware sales
D) Only software updates
Answer: A

32. Which initiative provides free online courses to students and teachers?
A) SWAYAM
B) IRCTC
C) UIDAI
D) NPCI
Answer: A

33. What is BharatNet?
A) Rural broadband connectivity project
B) Banking service
C) Mobile app
D) E-commerce portal
Answer: A

34. Which portal provides digital resources for school education?
A) DIKSHA
B) IRCTC
C) DigiLocker
D) UPI
Answer: A

35. Which initiative promotes coding and STEM in schools?
A) Atal Tinkering Labs
B) Swachh Bharat
C) Make in India
D) PMJDY
Answer: A

36. What is the use of DigiLocker?
A) Digital document storage
B) Online shopping
C) Food delivery
D) Travel booking
Answer: A

37. The Digital India program was launched in which year?

A) 2015
B) 2010
C) 2020
D) 2012
Answer: A

38. What is the focus of PM eVidya?
A) Digital education for all
B) Health insurance
C) Banking
D) Tax collection
Answer: A

39. Which initiative aims to bridge the digital divide in rural India?
A) BharatNet
B) Make in India
C) Swachh Bharat
D) UPI
Answer: A

40. What is the role of National Digital Library of India (NDLI)?
A) Provides free digital educational resources
B) Banking services
C) Insurance
D) E-commerce
Answer: A

PYQ & Application-Based Questions

41. Which of the following is NOT an application of AI?
A) Disease diagnosis
B) Text-to-speech conversion
C) Wireless transmission of electrical energy
D) Creating meaningful stories
Answer: C

42. Which of the following is a public ledger technology?
A) Blockchain
B) Cloud
C) IoT
D) AI
Answer: A

43. Which of the following is NOT an application of blockchain?
A) Cryptocurrency
B) Data storage
C) Manual attendance
D) Smart contracts
Answer: C

44. What is edge computing?
A) Processing data closer to the source
B) Only storing data in central servers
C) Manual data entry
D) Only offline processing
Answer: A

45. Which of the following is a benefit of edge computing in IoT?
A) Reduces latency
B) Increases manual work
C) Slows down devices
D) Only works offline
Answer: A

46. What is the main advantage of AI-driven governance?
A) Faster and more accurate decision-making
B) Manual paperwork
C) Only hardware upgrades
D) No data analysis
Answer: A

47. Which of the following is a challenge for India to become a global data centre hub?
A) Infrastructure gaps
B) High digital growth
C) Large internet user base
D) Data localization
Answer: A

48. Which of the following is a Digital India initiative for skilling?
A) National Centres of Excellence for Skilling
B) Only classroom teaching
C) Manual registers
D) None
Answer: A

49. Which technology is promoted for multilingual digital textbooks?
A) Bharatiya Bhasha Pustak Scheme
B) UPI
C) BharatNet
D) DigiLocker
Answer: A

50. What is a key focus of 2025 Digital India in education?
A) AI-powered adaptive assessments
B) Only manual grading
C) Only offline exams
D) None

Answer: A

Mixed & Higher-Order Questions

51. Which of the following is NOT a benefit of cloud computing for schools?
A) Easy collaboration
B) High upfront hardware cost
C) Scalable resources
D) Online access
Answer: B
52. Which of the following is NOT a type of cloud deployment?
A) Public
B) Private
C) Hybrid
D) Manual
Answer: D
53. What is the main benefit of AI in classroom management?
A) Automated attendance and personalized learning
B) Manual registers
C) Only chalkboard teaching
D) None
Answer: A
54. Which is NOT an IoT application in school infrastructure?
A) Smart lighting
B) Automated attendance
C) Manual chalkboard
D) Security monitoring
Answer: C
55. What is the main aim of Digital Public Infrastructure (DPI)?
A) Seamless digital access to services
B) Only urban development
C) Only hardware sales
D) None
Answer: A
56. Which of the following is a government platform for online teacher training?
A) DIKSHA
B) YouTube
C) WhatsApp
D) Facebook
Answer: A
57. Which of the following is NOT a feature of AI?
A) Learning from data
B) Manual data entry
C) Pattern recognition
D) Decision making
Answer: B
58. Which of the following is a key challenge for IoT?
A) Security and privacy
B) Easy automation
C) Real-time data
D) Smart devices
Answer: A
59. Which of the following is a benefit of 5G for IoT?
A) Faster connectivity
B) Slower speed
C) Manual data entry
D) None
Answer: A
60. Which of the following is a use of AI in healthcare?
A) Disease diagnosis
B) Manual registers
C) Only chalkboard teaching
D) None
Answer: A

Digital India & Technology Policy

61. What is the main goal of India's Semiconductor PLI scheme?
A) Boost domestic chip manufacturing
B) Increase manual labor
C) Reduce internet usage
D) None
Answer: A
62. Which of the following is a key focus for India's tech future?
A) Strengthening digital public infrastructure
B) Only hardware import
C) Manual registers
D) None
Answer: A
63. What is the role of AI supercomputing clusters?
A) Support research and startups

B) Only manual calculations
C) Only hardware sales
D) None
Answer: A

64. Which government initiative provides digital certificates and marksheets?
A) DigiLocker
B) UPI
C) IRCTC
D) PMJDY
Answer: A

65. Which of the following is NOT a cloud computing service provider?
A) AWS
B) Google Cloud
C) Azure
D) MS-DOS
Answer: D

66. Which technology is used for secure, decentralized data management?
A) Blockchain
B) Floppy disk
C) Typewriter
D) Manual registers
Answer: A

67. What is the main benefit of open-source AI frameworks for India?
A) Tailored for Indian languages and needs
B) Only for foreign use
C) Only for hardware
D) None
Answer: A

68. What is the focus of geospatial intelligence tools?
A) Secure navigation and defense
B) Only manual maps
C) Only urban areas
D) None
Answer: A

69. Which of the following is NOT a Digital India impact?
A) Improved digital access
B) Only offline education
C) Multilingual content
D) AI in governance
Answer: B

70. Which of the following is a challenge for sustainable tech growth in India?
A) Infrastructure gaps
B) High digital adoption
C) Data localization
D) None
Answer: A

Application & PYQ Style

71. Which of the following is an application of AI in governance?
A) Welfare distribution optimization
B) Manual paperwork
C) Chalkboard writing
D) None
Answer: A

72. Which of the following is a benefit of indigenous semiconductor manufacturing?
A) Reduces import dependency
B) Increases manual registers
C) Only hardware sales
D) None
Answer: A

73. Which of the following is a use of satellite-based broadband?
A) Rural connectivity
B) Only urban areas
C) Manual registers
D) None
Answer: A

74. Which of the following is a new trend in cloud computing?
A) Quantum cloud computing
B) Manual data entry
C) Only local storage
D) None
Answer: A

75. Which of the following is a focus of India's National Research Foundation?
A) Deep-tech R&D
B) Only hardware sales
C) Manual registers
D) None
Answer: A

76. Which of the following is a benefit of DPI in education?
A) Integrated access to records and credentials
B) Only offline classes
C) Manual registers

D) None
Answer: A

77. Which of the following is a use of AI in climate monitoring?
A) Remote sensing solutions
B) Only manual weather reports
C) Only urban areas
D) None
Answer: A

78. Which of the following is a feature of edge data centres?
A) Reduce latency for real-time applications
B) Increase manual work
C) Only store data centrally
D) None
Answer: A

79. Which of the following is a benefit of public-private partnerships in tech?
A) Co-develop scalable solutions
B) Only manual registers
C) Only government work
D) None
Answer: A

80. Which of the following is a key focus for AI governance in India?
A) Ethical and secure frameworks
B) Only hardware sales
C) Manual registers
D) None
Answer: A