
# Padasalai's Telegram Groups!

( தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்! )

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- Lesson Plan - Group
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# COMPUTER APPLICATIONS

## XII

**2, 3 & 5 Mark**

Name:.....

Class:.....Sec.....

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# 1. MULTIMEDIA AND DESKTOP PUBLISHING

**2 Mark**

**1.Define Multimedia**

Multimedia is an integration of many types of media like **text, images, graphics, audio, video, animation** etc.

**2. List out Multimedia Components**

| |
|---|
| 1.Text |
| 2. Images |
| 3. Audio |
| 4.Video |
| 5. Animation |

**3.Classify the TEXT Component in multimedia**

- Static Text
- Hyper Text

**4. Classify the IMAGE Component in multimedia**

- Raster or Bitmap image
- Vector Images

**5. Define Animation**

Animation is the process of displaying still images so quickly so that they give the impression of continuous movement.

**6. List out image file formats**

| | |
|---|---|
| 1.TIFF (Tagged Image File Format) | 4. GIF (Graphics Interchange Format) |
| 2. BMP (Bitmap) | 5.TGA (Tagra) |
| 3. DIB (Device Independent Bitmap) | 6. PNG (Portable Network Graphics |

**7. List out audio File Formats**

| |
|---|
| 1. WAV (Waveform Audio File Format) |
| 2. MP3 (MPEG Layer-3 Format) |
| 3. OGG |
| 4. AIFF (Audio Interchange File Format) |
| 5. WMA (Windows Media Audio) |
| 6. RA (Real Audio Format) |

**8. List out video file formats**

| |
|---|
| 1. AVI (Audio/Video Interleave) |
| 2. MPEG (Moving Picture Experts Group) |
| 3.WMV (Windows Media Video) |
| 4. FLV (Flash Video) |

**9. Define Multimedia Production**

Adequate time and efficient planning is required for multimedia production.

**10. List out Multimedia Production team members**

| | |
|---|---|
| 1. Production Manager | 6. Computer Graphic Artist |
| 2. Content Specialist | 7. Audio and Video Specialist |
| 3. Script Writer | 8. Computer Programmer |
| 4. Text Editor | 9. Web Master |
| 5.Multimedia Architect | |

**3 Mark**

**1. Briefly Explain about Multimedia Components**

| | |
|---|---|
| **1.Text** | It is the most common ways of **communicating information** to other person. |
| **2.Image** | It is a **vital** component in multimedia. |
| **3.Audio** | It is a **meaningful speech** in any language. |
| **4. Video** | It is the display of **recorded, event, scene** etc. |
| **5.Animation** | It is the impression of **continuous movement**. |

**2. Describe the features and techniques of animation.**

- Animation may be in **two or three** dimensional
- Animation tools are **very powerful** and effective.
- Two types of Animation **Path animation and Frame animation**.

**3. Write roles and responsibilities of Production team members.**

Various roles and responsibilities like **Production Manager , Script Writer, Text editor, Graphics Architect, Multimedia Architect, and Web Master.**

**4. Describe the various file formats in multimedia.**

| | | | |
|---|---|---|---|
| 1 | **Text Formats**<br>❖ RTF (Rich Text Format)<br>❖ Plain Text | 3 | **Audio File Formats**<br>❖ WAV(Waveform Audio File Format)<br>❖ MP3(MPEG Layer-3 Format) |
| 2 | **Image Formats**<br>❖ TIFF(Tagged Image File Format)<br>❖ GIF(Graphics Interchange Format) | 4 | **Video File Formats**<br>❖ AVI (Audio/Video Interleave)<br>❖ MPEG (Moving Picture Experts Group) |

**5 Mark**

**1.Explain in detail process of Multimedia**

| | | |
|---|---|---|
| **1** | **Conceptual Analysis and Planning** | It is a appropriate **theme, budget** and **content** availability. |
| **2** | **Project Design** | Theme is finalized **objectives, goals** and **activities** are the multimedia project. |
| **3** | **Pre-production** | Based on the **planning** and **design** to develop the project. |
| **4** | **Budgeting** | Budgeting for **consultants, hardware, software, travel**, **communication** and **publishing.** |
| **5** | **Multimedia Production Team** | Team for **Production Manager ,Script writer, Editor, Graphics & Multimedia Architect, Web master.** |
| **6** | **Hardware/Software Selection** | Hardware includes fastest **CPU, RAM, Monitors, Hard disks**. Software is the selection of **suitable software.** |
| **7** | **Defining the content** | Content is the **narration, bullets, charts** and **tables** etc. |
| **8** | **Preparing the structure** | Structure defines the **activities, responsible person**, start and end time for **each activity.** |
| **9** | **Production** | Background **music selection, pictures shot and video clips** project is ready by this time. |
| **10** | **Testing** | The complete testing of the **product** avoiding **failure** after launch. |
| **11** | **Documentation** | It is a valuable information like **contact details, e-mail address** and **phone numbers.** |
| **12** | **Delivering the Multimedia product** | Delivered on **CD/DVD** or in the Website and Internet. |

**2. Explain in detail Techniques of Animation**

- Animation is the process displaying still images so **quickly** so that they give the **impression** of **continuous movement**.
- The Least frame rate of at least **16 frames** per second impression of smoothness. The Natural looking of at least **25 frames** per second.
- Animation may be in **two or three** dimensional. Two dimensional animation is a **two axis X and Y**. Three dimensional animation is a three **axis X, Y** and **Z**
- Animation tools are **very powerful** and effective. Two types of Animation **Path animation** and **Frame animation.**
- Path animation involves **moving an object** on a screen. **Ex. Cartoon character**. Frame animation is a **multiple objects** are allowed to travel and the **background side changes**.

**3. Explain in detail about production team roles and Responsibilities**

| | | |
|---|---|---|
| **1** | **Production Manager** | Production manager is a technology expert, efficient team leader, good writing , Communication and budget management skills. |
| **2** | **Content Specialist** | It is a responsible for performing all research activities includes program contents, applications content and project information. |
| **3** | **Script Writer** | Script writer visualizes the concepts in three dimensional environments. |
| **4** | **Text editor** | Text editor is text to be structured, correct and grammatically check the document. |
| **5** | **Multimedia Architect** | It is include graphics, text, audio, video, music, photos and animation. |
| **6** | **Computer graphic Artist** | It is include backgrounds, bullets, buttons, pictures editing, animation and logos etc. |
| **7** | **Audio and video specialist** | It is include recording, editing, sound effects and digitalizing. |
| **8** | **Computer Programmer** | Writes the line of code or scripts in any language. |
| **9** | **Web master** | Web master is to create and maintain an internet webpage. |

**4. Explain about different file format in multimedia files**

| | | |
|---|---|---|
| **1** | **Text Formats** | • **RTF** is a primary file format in 1987 by Microsoft.<br>• **Plaintext** file is opened, read, and edited with text editors. |
| **2** | **Image Formats** | • **TIFF** is common in DTP in world is a high quality output.<br>• **GIF** is a compressed image format.<br>• **JPEG** was designed to maximum image compression uses lossy compression technique.<br>• **TGA** is the first popular format for high resolution images. |
| **3** | **Audio file Formats** | • **WAV** is the most popular file format in windows for storing uncompressed sound files.<br>• **MP3** is the most popular format for storing and downloading music.<br>• **WMA** is a popular windows media audio format owned by Microsoft |
| **4.** | **Video file format** | • **AVI** is the video file format for windows. Sound and picture elements are stored in the file.<br>• **MPEG** is a digital video and audio compression under the **I**nternational **S**tandards **O**rganization by the group of people. |

# 2. AN INTRODUCTION TO ADOBE PAGEMAKER

**2 Mark**

**1.What is desktop publishing?**

Desktop publishing is the creation of **page layouts** for documents using DTP software.

**2. Give some examples of DTP software.**

| | | |
|---|---|---|
| Adobe PageMaker | Adobe InDesign | QuarkXpress |

**3. Write the steps to open PageMaker.**

**Start → All Programs → Adobe → PageMaker 7.0 → Adobe PageMaker 7.0**

**4. How do you create a New document in PageMaker?**

1. Choose **File → New** in the menu bar.
2. Now **Document Setup Dialog box appears.**
3. Enter the appropriate **settings.**
4. Click on **OK.**

**5. What is a Pasteboard in PageMaker?**

The area **outside** of the dark border is referred to as the **pasteboard**.

**6. Write about the Menu bar of PageMaker.**

**File, Edit, Layout, Type, Element, Utilities, View, Window, Help.**

**7. Differentiate Ellipse tool from Ellipse frame tool.**

| Ellipse tool | Ellipse frame tool |
|---|---|
| Used to draw **circles** and **ellipses.** | Used to create elliptical placeholders for **text** and **graphics.** |

**8. What is Text editing?**

Entering a **new text** or modifying the **existing text** in a document is known as **Text editing.**

**9. What is text block?**

A **text block** contains **type, paste or import**. You can't see the borders of a text block until you select the **pointer tool**.

**10. What is threading text blocks?**

A **threaded text block** can be identified by a **plus sign** in its **top or bottom handles**.

**11. What is threading text?**

The process of **connecting text** among **Text blocks** is called **threading text**.

**12. How do you insert a page in Page Maker?**

1. Choose **Layout →Insert Pages** in the menu bar.

2**. Dialog box appears.**

3. Type the **number of pages** you want to insert.

4. Click on **Insert**.

**3 Mark**

**1.What is pagemaker? Explain its uses.**

Adobe page Maker is a **page layout software**. It is used to design and produce documents that can be **printed**. You can create anything from a **simple business card** to a **large book**.

**2. Mention three tools in PageMaker and write their keyboard shortcuts.**

| | |
|---|---|
| **Pointer Tool** | F9 |
| **Rotating Tool** | Shift + F2 |
| **Line Tool** | Shift + F3 |

**3. Write the use of any three tools in PageMaker along with symbols.**

| | | |
|---|---|---|
| **Line Tool** |  | Used to draw straight lines in any direction. |
| **Constrained line tool** |  | Used to draw vertical or horizontal lines. |
| **Rectangle tool** |  | Used to draw squares and rectangles. |

**4. How do you rejoin split blocks?**

- Place the Cursor – bottom handle – second text block – drag and drop - up to top.
- Place the Cursor - bottom handle – first text block – drag and drop – if necessary.

**5. How do you link frames containing text?**

1. Draw a **second frame** 2. Click the **first frame** to select it.
3. Click the red triangle 4. Click the **second frame**

PageMaker flows the text into the second frame.

**6. What is the use of Master Page?**

Master Pages commonly use **logos, page numbers, headers, and footers**.

**7. How to you insert page numbers in Master Pages?**

1. Click on **Master Pages icon**.
2. Click the **Text tool**.
3. Then Click the **Left Master Pages**.
4. Press **Ctrl + Alt + P**
5. **Page Number** display on the **Master Pages**.

**5 Mark**

**1.Explain the tools in PageMaker Toolbox.**

| Tool | Tool Box | Use |
|---|---|---|
| **Pointer tool** |  | Used to **select, move, and resize text objects** and **graphics**. |
| **Text tool** |  | Used to **type, select, and edit** text. |
| **Rotating tool** |  | Used to **select** and **rotate** objects. |
| **Cropping tool** |  | Used to **orderly** imported graphics. |
| **Line tool** |  | Used to draw **straight lines** in any direction |
| **Constrained line tool** |  | Used to draw **vertical or horizontal lines**. |
| **Rectangle tool** |  | Used to draw **squares** and **rectangles**. |
| **Rectangle frame tool** |  | Used to create **rectangular placeholders** for text and graphics. |
| **Ellipse tool** |  | Used to draw **circles** and **ellipses.** |
| **Ellipse frame tool** |  | Used to create **elliptical placeholders** for text and graphics. |
| **Polygon tool** |  | Used to draw **polygons**. |
| **Polygon frame tool** |  | Used to create **polygonal placeholders** for text and graphics. |
| **Hand tool** |  | Used to **scroll** the page |
| **Zoom tool** |  | Used to **magnify or reduce** an area of the page. |

**2. Write the steps to place the text in a frame.**

1. Click on one of a **Frame tool** from the **Toolbox**.
2. **Draw a Frame** with one of PageMaker's **Frame tools**
3. Click on **File**. The File **menu will appear.**
4. Click on **Place**. The Place **dialog box will appear**.
5. **Locate** the document **select** it.
6. Click on **Open.**
7. Click in a **frame** to place the text will be **placed in the frame**.

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**3. How can you convert text in a text block to a frame?**

1. Draw the **frame** of your choice using one of the PageMaker's **Frame tool.**
2. Select the **text block** you want to **insert** in the frame.
3. Click the **frame** while pressing the **Shift key**. Now **both** elements will be **selected.**
4. Choose **Element > Frame > Attach Content** on the Menu bar.
5. Now the **text appears** in **the frame**.

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**4. Write the steps to draw a star using polygon tool?**

1. Click on the **Polygon tool** from the **toolbox**.
2. The cursor changes to a **crosshair**.
3. Click and **drag** anywhere on the **screen**.
4. Choose **Element > Polygon Settings** in the menu bar.
5. Polygon Settings **dialogue box appears**.
6. Type **5** in the Number of sides **text box**.
7. Type **50%** in star insert **textbox**.
8. Click **OK**. Now the required **star appears** on **the screen**.

# 3. INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

## 2 Mark

**1.Define Data Model and list the types of data model used.**

The database technology came into existence in terms of models with relational and object-relational behavior.

- ★ Hierarchical Database model
- ★ Network Model
- ★ Relational Model
- ★ Object Oriented database model

**2. List few disadvantages of processing system**

- ❖ Data Duplication - Same data is used for processing system.
- ❖ High Maintenance - Access control and verifying data.
- ❖ Security - Less security provided to the data.

**3. Define Single and multi valued attributes.**

| Single Valued Attributes | Multi Valued Attributes |
|---|---|
| A single valued attribute contains **only one value** for the attribute. | A multi valued attribute has **more than one value** for that particular attribute. |
| **Example**: Age – 13<br>Roll No – 1234 | **Example:** Degree – M.Sc., B.Ed.,<br>Bank – SBI, IOB |

**4. What are the ACID properties?**

- **A**tomicity, **C**onsistency, **I**solation and **D**urability

**5. Which command is used to make permanent changes done by a transaction?**

- COMMIT, ROLLBACK, SET TRANSACTION and SAVEPOINT

**6. List any two DDL and DML commands with its Syntax.**

| DDL Commands | Syntax | DML Commands | Syntax |
|---|---|---|---|
| **CREATE** | CREATE database databasename; | **INSERT** | INSERT INTO tablename VALUES(value1,value2,value3); |
| **DROP** | DROP database databasename; | **DELETE** | DELETE from tablename WHERE columnname=”value”; |

**7. What is view in SQL?**

- **Views** – A set of stored queries. **Example:** create a database to store the personal details.

**8. Write the difference between SQL and MySQL**

| SQL | MySQL |
|---|---|
| SQL is a **S**tructured **Q**uery **L**anguage | MySQL is a database Software. |
| To **query** and **operate** database system. | Allows **data handling, storing, modifying, deleting.** |

**9. State few advantages of Relational databases.**

- The DBMS provides **create, retrieve, update and manage data.**

**10. What is DBMS?**

- A database management system is system software for **creating** and **managing databases.**

**11. What is SQL?**

- SQL – Structured Query Language is a standard language used for **accessing** and **manipulating databases.**

**3 Mark**

**1.Explain on Evolution of DBMS.**

- ❖ Storing the data started before **40 years** in various formats.
- ❖ In earlier days they have used **punched card technology** to store the data.
- ❖ The file system were **indexed, random** and **sequential access**.

**2. What is Relationship and List its types.**

In ER Model, relationship exists between **two entities**. Three types of relationships are available in the **Entity Relationship**.

- ★ One-to-One relationship
- ★ One-to-Many relationship
- ★ Many-to-Many relationship

**3. Discuss on Cardinality in DBMS**

- Cardinality is defined as the number of items included in a relationship.

**Types of Cardinality**

- ✦ One to One – **Ex:** Person – Drives –Vehicles
- ✦ One to Many – **Ex:** Customer – Places – Order
- ✦ Many to Many – **Ex:** Student – Register – Course

**4. List any 5 privileges available in MySQL for the User.**

| | |
|---|---|
| **Select_Priv** | It is used to **select rows from database tables**. |
| **Insert_Priv** | It is used to **insert rows into database tables**. |
| **Update_Priv** | It is used to **update rows of database tables.** |
| **Delete_Priv** | It is used to **delete rows of database tables.** |
| **Create_Priv** | It is used to **create a new tables in database.** |

**5. Write few commands used by DBA to control the entire database.**

| COMMANDS | SYNTAX |
|---|---|
| **USE Database** | mysql > test; |
| **SHOW Databases** | mysql > show databases; |
| **SHOW Tables** | mysql > show tables; |

**6. Types of SQL Commands**

| | |
|---|---|
| **DDL-D**ata **D**efinition **L**anguage | CREATE, ALTER, DROP, RENAME, TRUNCATE |
| **DML-D**ata **M**anipulation **L**anguage | INSERT, UPDATE, DELETE |
| **DQL-D**ata **Q**uery **L**anguage | SELECT |
| **TCL-T**ransaction **C**ontrol **L**anguage | COMMIT, ROLLBACK, SET TRANSACTION, SAVEPOINT |
| **DCL-D**ata **C**ontrol **L**anguage | Grant, Revoke |

**5 Mark**

**1.Discuss on various Database Models available in DBMS.**

**Database Models**

- The database technology came into existence in terms of models with **relational** and **object-relational** behavior.

**Hierarchical Database Model**

- In this model each record has information in **parent/child relationship** like a **tree structure.**
- ✓ **Advantages** less redundant data, **efficient search**, **data integrity**, and **security**.

**Network model**

- In this model each member can have **more than one owner**. The **many to many** relationships are handled in a better way.
- ✓ Network schema - It is the **structure** of database.
- ✓ Sub schema - **Controls** on views of the database.
- ✓ Language - basic **procedural** for accessing the database.

**Relational model**

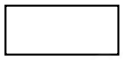
- Relational model is defined with two terminologies **Instance** and **Schema**. A relation (table) consists of **attributes(columns)** and **tuples (rows).**
- ✓ Instance - A table consisting of **rows** and **columns.**
- ✓ Schema - The structure including **name** and **type** of each column.

**Object oriented database model**

- In this model serves as the base **of Relational model**. Object oriented model uses small, reusable software known as Objects.

**2. List the basic concepts of ER Model with suitable example.**

**ER modeling basic concepts**

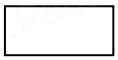
1. Entity or Entity type 
2. Attributes 
3. Relationship 

**1.Entity or Entity type**

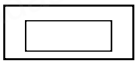
An Entity can be anything area-world object or animation. An entity is represented by a **rectangular box**.

**Types of Entity**

1. Strong Entity 2.Weak Entity 3. Entity Instance

**Strong Entity** 

A strong entity is the one which **doesn't depend on any other entity** on the database. A strong entity will have a **primary key** with it. It is represented by **one rectangle.**

**Weak Entity** 

A weak entity is **dependent** on other entities and it **doesn't any primary key**. It is represented by **double rectangle.**

**Entity Instance**

Instances are the **values** for the entity. We consider **animals as the entity** their instance will be **dog, cat, cow**…etc.

**2.Attributes**

An attribute is the information about the entity include **quantify, qualify, classify,** and **specify an entity.**

**Types of attributes**

1. Key Attribute
2. Simple Attributes
3. Composite Attributes
4. Single valued Attribute
5. Multi valued Attribute

**3.Relationship Type**

In ER Model, relationship exists between **two entities**. Three types of relationships are available in the **Entity Relationship.**

**Relationship Type**

1.One-to-One relationship – (1:1)

2.One-to-Many relationship – (1:N)

3.Many-to-Many relationship –(M:N)

**3.Discuss in detail on various types of attributes in DBMS**

**Attributes**

- An attribute is the information about the entity include **quantify, qualify, classify,** and **specify** an entity.

**Types of attributes**

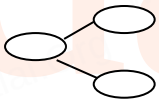
1. Key Attribute
2. Simple Attributes
3. Composite Attributes
4. Single Valued Attributes
5. Multi Valued Attributes

**1.Key Attribute** 


- Key attributes is a **unique** characteristic on an entity.

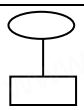
**2.Simple Attribute** 

- Simple attributes is a **single value** for their entity. It **cannot be separated**.

**3.Composite Attributes** 

- Composite attributes is a **subdivided** into simple attributes.

**Single valued attributes and Multi valued attributes.**

| 4.Single Valued Attributes | 5. Multi Valued Attributes |
|---|---|
| A single valued attribute contains **only one value** for the attribute. | A multi valued attribute has **more than one value** for that particular attribute. |
| **Example:** Age – 13<br>Roll No – 1234  | **Example**: Degree – M.Sc., B.Ed.,<br>Bank – SBI, IOB  |

# 4. INTRODUCTION TO HYPERTEXT PRE-PROCESSOR

**2 Mark**

**1.What are the common usages of PHP?**

- PHP can be used on all major operating systems. **Ex**. **Windows, Linux, Mac OS**
- PHP has also Support for most of the web servers. **Ex. Apache and many others.**

**2.What is Web server**?

- A web server is a software that uses **Hypertext Transfer Protocol** to serve the files that form **web pages to users**.

**3. What are the types of scripting language?**

- ✓ Client side scripting language
- ✓ Server side scripting language

**4. Difference between Client and Server?**

| Client | Server |
|---|---|
| Client side environment used to run scripts is usually a **browser**. | Server side environment that runs a scripting language is a **web server**. |
| **Ex**. HTML, CSS, JS, etc. | **Ex.** PHP, Python, etc. |

**5. Give few examples of Web Browser?**

- ⇨ Google chrome
- ⇨ Mozilla Firefox
- ⇨ Opera
- ⇨ Safari
- ⇨ Internet Explorer
- ⇨ UC Browser

**6. What is URL?**

- URL is a **U**niform **R**esource **L**ocator, the address of a specific **Web page** or **file** on the **Internet.**

**7. Is PHP a case sensitive language?**

- ✓ Yes, PHP a case sensitive language.

**8. How to declare variables in PHP?**

- ◆ Variable name must always begin with a **$ symbol**. It is never start with a number. Variables are **case sensitive**.

**9. Define Client Server Architecture.**

- Client –Server Architecture is a Server provides **resources and services** to **one or more** clients.

**10. Define Web server?**

- ● A web server is a software that uses **Hypertext Transfer Protocol** to serve the files that form Web pages to users. A Web server contains **one or more websites**.

**3 Mark**

**1.Write the features of server side scripting language.**

- Greater protection for user privacy
- Reduces the loading time for web pages.
- Multiple processes for web server.

**2. Write is the purpose of Web servers?**

A Web server is a software that uses **Hypertext Transfer Protocol** to serve the files that form **Web pages to users**. A Web server contains **one or more websites**.

**3. Differentiate Server side and Client Side Scripting language?**

| Client side | Server side |
|---|---|
| Client side environment used to run scripts is usually a **browser**. | Server side environment that runs a scripting language is a **web server.** |
| Does not need server interaction | Requires server interaction. |
| Ex. HTML, CSS, JS, etc. | Ex. PHP, Python, etc. |

**4. In how may ways you can embed PHP code in an HTML Page?**

- The First way is the HTML outside of your PHP tags.
- The Second way is the HTML with PHP using PRINT or ECHO

5**. Write short notes on PHP operator.**

1. Arithmetic operators
2. Assignment operators
3. Comparison operators
4. Increment/Decrement operators,
5. Logical operators
6. String operators

**5 Mark**

**1.Discuss in detail about PHP data types**

| Data Types | Description | Example |
|---|---|---|
| **String** | String is a collection of characters within the **double or single quotes**. | <? php<br>$x=”Computer Application”;<br>$=’Computer Application’;<br>?> |
| **Integer** | Integer is a data type which contains **non decimal numbers.** | <?php<br>$x=1234;<br>?> |
| **Float** | Float is a data type which contains **decimal numbers.** | <?php<br>$x=1.23;<br>?> |
| **Boolean** | Boolean is a data type which contains the possible **two states.** | <?php<br>$x=true;<br>$y=false;<br>?> |
| **Array** | Array is a data type which has **multiple values in single variable.** | <?php<br>$x = array(“Computer”, ”Application”);<br>?> |

| | | |
|---|---|---|
| **Object** | Object is a data type which contains information about **data and function** inside the class. | <?php<br>$School = new School( );<br>?> |
| **NULL** | Null is a special data type which contains a single value: **NULL** | <?php<br>$x= “Computer Application”<br>$x= null;<br>?> |
| **Resource** | Resource is a specific variable, it has a **reference to an external resources**. | <?php<br>$x = fopen(“Book .txt”, “r”);<br>var_dump($x);<br>?> |

**2.Explain Operators in PHP with Example.**

**Operators in PHP**

1. Arithmetic operators 2.Assignment operators 3.Comparison operators
4. Increment/Decrement operators, 5. Logical operators 6.String operators

**Arithmetic operators**

Arithmetic operators in PHP perform addition, subtraction, multiplication, and division.

| Symbol | Operator Name | Purpose |
|---|---|---|
| + | Addition | Adding numbers |
| - | Subtraction | Subtracting numbers |
| * | Multiplication | Multiplying numbers |
| / | Division | Dividing numbers |
| % | Modulus | Quotient remainder values |

**Assignment Operators**

Assignment operators in PHP perform numeric values to store a value to a variable.

| Assignment | Description | Assignment | Description |
|---|---|---|---|
| x = y | Variable = value | x = x * y | Multiplication |
| x = x + y | Addition | x = x / y | Division |
| x = x – y | Subtraction | x = x% y | Modulus |

**Comparison Operators**

Comparison operators perform and action to compare two values.

| Symbol | Name | Symbol | Name | Symbol | Operator name |
|---|---|---|---|---|---|
| = = | Equal | < > | Not equal | < | Less than |
| = = = | Identical | ! = = | Not Identical | >= | Greater than or equal to |
| ! = | Not equal | > | Greater than | < = | Less than or equal to |

**Increment and Decrement Operators**

Increment and decrement operators are used to perform increasing and decreasing variable.

| Operator | Name |
|---|---|
| ++$x | Pre-increment |
| $x++ | Post-increment |
| --$x | Pre-decrement |
| $x-- | Post-decrement |

**Logical Operators**

Logical operators are used to perform conditional statements.

| Symbol | Operator Name | Example |
|---|---|---|
| & & | AND | $x && $y |
| \| \| | OR | $x \| \| $y |
| ! | NOT | ! $x |
| XOR | XOR | $x xor $y |

**String Operators**

String Operators are used to perform Concatenation and concatenation assignment.

| Operator | Name | Example |
|---|---|---|
| . | Concatenation | &text1. $text2 |
| .= | Concatenation assignment | $text1.=$text2 |

# 5. PHP FUNCTION AND ARRAY

## 2 Mark

**1.Define Function in PHP**

A Function is a type of **sub routine or procedure** in a program. A Function will be executed by a **call to the Function** and the Function returns any data type values or **NULL value** is called Function.

**2. Define User Defined Function**

User defined function in PHP gives a **privilege** to user to write own **specific operation** inside of existing program module.

**3. What is parameterized Function.**

PHP Parameterized functions are the functions with **parameters or arguments**.

**4. List out System defined functions**.

- ✓ is_bool(),
- ✓ is_int(),
- ✓ is_float()
- ✓ is_null()

**5. Write Syntax of the Function in PHP.**

**Syntax**

```
function functionName()
{
    Code to be executed;
}
```

**6. Define Array in PHP**

Array is a concept that stores **more than one value** of same data type in single array variable. Array is a data type which has a **multiple values** in a **single variable.**

**7. Usage of Array in PHP**

Array is a concept that stores more than one value of **same data type** in single array variable. Array is a data type which has a **multiple values** in a **single variable**.

**8. List out types of Array in PHP**

- ★ Indexed Arrays
- ★ Associative Array
- ★ Multi-Dimensional Array

**9. Define Associative Array**

Associative arrays are arrays that use **named keys** that you assign to them.

**10. Array Syntax in PHP**

*$Array_Variable = array("value1", "value2", "value3");*

**3 Mark**

**1.Write the features System define Functions**

A function is already created by **system** it is a reusable piece or **block of code** that performs a specific action.

**2. Write the purpose of parameterized Function**

The parameter is also called as **arguments**, it is like **variables**. PHP Parameterized functions are the functions with **parameters or arguments**.

**3. Differentiate user define and system define Functions.**

| User Defined Function | System Define Function |
|---|---|
| User defined function in PHP gives a privilege to **user to write own specific operation inside** of existing program module. | A function is already created by system it is a reusable **piece or block of code** that performs a specific action. |

**4. Write Short notes on Array**

Array is a concept that stores **more than one value** of same data type in single array variable. Array is a data type which has a **multiple values in a single variable**.

- Indexed Arrays
- Associative Array
- Multi-Dimensional Array

**5. Differentiate Associate array and Multidimensional array**

| Associate array | Multidimensional array |
|---|---|
| Associative arrays are arrays that use **named keys** that you assign to them.<br>**Syntax**<br>*array(key=>value, key=>value, key=>value…);* | A multidimensional array is an array containing **one or more arrays**.<br>**Syntax**<br>*array(*<br>*array(elements),*<br>*array(elements),*<br>*);* |

**5 Mark**

**1.Explain Function concepts in PHP**

**Functions in PHP**

A Function is a type of **sub routine or procedure** in a program. A Function will be executed by a call to the Function and the Function returns any data type values **or NULL** value is called Function.

- User defined Function
- Pre-defined or system or built-in function
- Parameterized Function

**1. User Defined Function**

User defined function in PHP gives a privilege to user to **write own specific operation** inside of existing program module.

**Syntax**

function *functionName()*

{

Code to be executed;

}

**2. Function calling**

A **function declaration part** will be executed by a call to the function.

**Syntax**

*functionName();*

**Example**

```
<?php
function insert( )
{
  echo " Student details";
}
insert();    //call the function
?>
```

**3. Parameterized Function**

The parameter is also called as **arguments**, it is like **variables**. PHP Parameterized functions are the functions with **parameters or arguments**.

**Example**

```
function insert($sname){        // Parameterized function
    echo $sname."Student details";
} ?>
```

**2. Explain Array concepts and their types**

**Array**

Array is a concept that stores **more than one value** of same data type in single array variable. Array is a data type which has a **multiple values in a single variable**.

**Types of Array in PHP**

- Indexed Arrays
- Associative Array
- Multi-Dimensional Array

**Array Syntax**

*$Array_Variable = array("value1", "value2", "value3");*

**Indexed Arrays**

The index can be assigned **automatically i**n a collection of **data set**.

**Example**

```
<?php
$student_name= array("name1", "name2", "name3");
?>
```

**Associative Arrays**

Associative arrays are arrays that use **named keys that** you assign to them.

**Syntax**

*array(key=>value, key=>value, key=>value…);*

**Multidimensional Array**

A multidimensional array is an array containing **one or more arrays.**

**Syntax**

```
array(
 array(elements),
 array(elements),
 );
```

## 6. PHP CONDITIONAL STATEMENTS

**2 Mark**

**1.Define Conditional Statements in PHP.**

Conditional Statements are useful for writing **decision making logics**. It is most important feature of **many programming languages including PHP**.

**2. Define If statement in PHP**

If statement executes a **statement or a group of statements** if a specific condition is satisfied **as per the user expectation**.

**3. What is If else statement in PHP**

If statement executes a statement or a group of statements if a specific condition is satisfied by the **user expectation.**

**4. List out conditional statements in PHP**

if Statement

if…else Statement

if…elseif…else Statement

Switch Statement

**5. Write Syntax of the If else statement in PHP**

```
if(condition)
{
    Condition is true;
}
else
{
    Condition is false;
}
```

**6. Define If…elseif…else Statement in PHP**

If-elseif-else statement is a combination of if-else statement. **More than one statement** can execute the condition based on user needs.

7. **Usage of Switch statement in PHP**

The switch statement is used to perform **different actions** based on **different conditions.**

**8. Write syntax of Switch statement.**

```
Switch(n){
    case label 1:
        Code to be executed label 1;
        break;
    case label 2:
        Code to be executed label 2;
        break;
    case label 3:
        Code to be executed label 3;
        break;
    .....
    default:
        Code to be executed n;
    }
```

**9. Compare If and If else statement**

| If Statement | If else Statement |
|---|---|
| • If statement executes a statement or a group of statements if a specific condition is satisfied **as per the user expectation**.<br>• Condition is **true**. | • If statement executes a statement or a group of statements if a specific condition is **satisfied by the user expectation**<br>• Condition is **true or false.** |

**3 Mark**

**1.Write the features conditional statements in PHP**

Conditional Statements are useful for **writing decision making logics**. It is most important feature of **many programming languages including PHP**.

**2. Write is the purpose of if -elseif-else statement.**

If-elseif-else statement is a combination of if-else statement. **More than one statement** can execute the condition based on user needs.

**3. Differentiate switch and If else statement**

| Switch statement | If else statement |
|---|---|
| It is uses **single expression** for multiple choices. | It is uses **multiple statement** for multiple choices. |
| It is executed **one case after another.** | It is executed **true or false**. |
| It is test only for equality. | It is test only for equality as well as logical expression. |

**4. Write Short notes on Switch statement**

The switch statement is used to perform **different actions** based on **different conditions**.

Switch statement test only for **equality.**

**5. Differentiate if statement and if- elseif- else statement**

| If statement | If- elseif -else statement |
|---|---|
| It is a **single** statement. **No else** statement. | It is a combination of **if-else statement.** |
| **Only one** statement s can execute. | **More than one** statement can executed. |
| Condition is false there is **no alternatives.** | Condition is false **more than alternatives**. |

**5 Mark**

**1.Explain Functions of conditional statements in PHP**

**PHP Conditional Statements**

Conditional Statements are useful for writing decision making logics. It is most important feature of many programming languages including PHP.

- ★ if Statement
- ★ if…else Statement
- ★ if…elseif…else Statement
- ★ Switch Statement

**If statement**

If statement executes a statement or a group of statements if a specific condition is satisfied as per the user expectation.

**If …else statement**

If statement executes a statement or a group of statements if a specific condition is satisfied by the user expectation.

**If…elseif…else statement**

If-elseif-else statement is a combination of if-else statement. More than one statement can execute the condition based on user needs.

**Switch statement**

The switch statement is used to perform different actions based on different conditions. Switch statement test only for equality.

**2. Discuss in detail about Switch statement with an example**

The switch statement is used to perform different actions based on different conditions. Switch statement test only for equality. It is execute one case after another till a break statement.

**Syntax**

```
Switch(n){
    case label 1:
        Code to be executed label 1;
        break;
    case label 2:
        Code to be executed label 2;
        break;
    case label 3:
        Code to be executed label 3;
        break;
    .....
    default:
        Code to be executed n;
}
```

**Example**

```
<?php
$favcolor = ”red”;
switch($favcolor){
        case “red”:
          echo “favorite color is red”;
          break;
        case “blue”:
           echo “favorite color is blue”;
           break;
        case “green”:
           echo “favorite color is green”;
           break;
        default:
           echo favorite color is neither red, blue nor green”;
}
?>
```

# 7. LOOPING STRUCTURE

**2 Mark**

**1.Define Looping Structure in PHP.**

Looping Structures are useful for **writing iteration logics**. It is the most important feature of **many programming languages, including PHP.**

---

**2. Define for loop in PHP.**

For loop is an important functional **looping system** which is **user for iteration logics**.

---

**3. What is for each loop in PHP?**

foreach loop is exclusively available in PHP. **It works only with arrays**. The loop iteration depends on each **KEY value** in the Array.

---

**4. List out looping Structure in PHP**

- For loop
- Foreach loop
- While loop
- Do While loop

---

**5. Write Syntax of for loop in PHP**

*for (int counter; test counter; increment counter)*

{

Code to be executed;

}

---

**6. Write Syntax of For each loop in PHP**

*for each ($array as $value)*

{

Code to be executed;

}

**7. Write Syntax of while loop in PHP**

*While (condition is true)*

*{*

*Code to be executed;*

*}*

**8. write syntax of Do while loop in PHP**

*do*

*{*

*Code to be executed;*

*} while(condition is true);*

**9. Compare for loop and for each loop.**

| For loop | For each loop |
|---|---|
| for loop is an important functional looping system which is **user for iteration logics**. | foreach loop is exclusively available in PHP. It **works only with arrays.** |

**10. Usage of for each loop in PHP**

The foreach loop **works only on arrays,** and is used to loop through each **key/value pair in an array.**

**3 Mark**

**1.Write the features Looping structure**

Looping Structures are useful **for writing iteration logics**. It is the most important feature of many programming languages, including PHP.

- For loop
- Foreach loop
- While loop
- Do While loop

**2. Differentiate for each and while loop**

| foreach loop | While loop |
|---|---|
| Foreach loop is exclusively available in PHP. It works **only with arrays.** The loop iteration depends on each **KEY value** in the Array. | While loop is an important feature which is used for **simple iteration logics**. The condition is **true or false** |
| *for each ($array as $value)*<br>*{*<br>*Code to be executed;*<br>*}* | *While (condition is true)*<br>*{*<br>*Code to be executed;*<br>*}* |

**3. Differentiate While and Do while loops.**

| While loop | Do while loop |
|---|---|
| While loop is an important feature which is used for **simple iteration logics**. The condition is **true or false** | Do while loop **always run the statement** inside of the loop block at the first time execution. The condition **is true or false.** |
| *While (condition is true){*<br>*Code to be executed;*<br>*}* | *do{*<br>*Code to be executed;*<br>*} while(condition is true);* |

**5 Mark**

**1.Explain Looping Structure in PHP.**

Looping Structures are useful for writing iteration logics. It is the most important feature of many programming languages, including PHP.

- for loop
- foreach loop
- While loop
- do While loop

**For loop**

For loop is an important functional looping system which is user for iteration logics.

**Foreach loop**

Foreach loop is exclusively available in PHP. It works only with arrays. The loop iteration depends on each KEY value in the Array.

**While loop**

While loop is an important feature which is used for simple iteration logics. The condition is true or false

**Do While loop**

Do while loop always run the statement inside of the loop block at the first time execution. The condition is true or false.

**2. Discuss in detail about for each loop.**

Foreach loop is exclusively available in PHP. It works only with arrays. The loop iteration depends on each KEY value in the Array.

**Syntax**

```
for each ($array as $value)
{
    Code to be executed;
}
```

**Example**

```
<?php
$student_name = array("name1","name2","name3");
foreach($student_name as $value)
{
    echo "$value<br>";
}
?>
```

**3. Explain the process Do while loop**

Do while loop always run the statement inside of the loop block at the first time execution. The condition is true or false.

**Syntax**

```
do
{
    Code to be executed;
} while(condition is true);
```

**Example**

```
<?php
    $i=0;
    do
    {
        echo ”The number is: $i”;
        $i++;
    } While($i<=10);
?>
```

**4. Explain concepts of for loop with example**

For loop is an important functional looping system which is user for iteration logics.

**Syntax**

*for (int counter; test counter; increment counter)*

{

Code to be executed;

}

**Example**

```
<?php
    for($i=0;$i<=10;$i++)
    {
        echo “The number is : $i”;
    }
?>
```

**3. Explain concepts of if-elseif -else statement**

If-elseif-else statement is a combination of if-else statement. More than one statement can execute the condition based on user needs.

**Syntax**

```
if( 1st condition)
{
        1st Condition is true;
}
elseif(2nd condition)
{
        2nd Condition is true;
}
else
{
        Both conditions are false;
}
```

**Example**

```
<?php
$pass_mark=35;
$firts_class=60;
$student_mark=70;
if(student_mark>=$first_class){
        echo “The student is eligible with the first class”;
}
elseif($student_mark>=$pass_mark){
        echo “The student is eligible”;
else{
        echo “The student is not eligible “;
}?>
```

**4. Explain If else statement in PHP**

**If else statement**

If statement executes a statement or a group of statements if a specific condition is satisfied by the user expectation.

**Syntax**

*if(condition)*

*{*

*Condition is true;*

*}*

*else*

*{*

*Condition is false;*

*}*

**Example**

```
<?php
$pass_mark=35;
$student_mark=70;
if($student_mark>=$pass_mark){
    echo “The student is eligible”;
}
else{
    echo “The student is not eligible “;
}
?>
```

## 8. FORMS AND FILES

**2 Mark**

**1.Define HTML form controls**

Text inputs contain **textbox** and **text area controls**. Buttons may contain **Submit button**, **Reset button** and **Cancel Button**. Form tag is used to control the entire HTML document.

**2. Define for Form Handling method in PHP.**

- **Post Method** - it is designed to get data from server.
- **Get Method** - it is designed to send data to the server.

**3. What is Form Validation in PHP?**

Validation is a process of **checking the input data** submitted by the user from **client machine.**

- Client Side Validation
- Server Side Validation

**4. List out HTML control to support PHP language.**

- ☐ Text inputs
- ☐ Buttons
- ☐ Checkbox
- ☐ Radio box
- ☐ File Select
- ☐ Form Tag

**5. Write Syntax of Text box in HTML**

| Type | Description |
|---|---|
| <input type = “text”> | Defines a one-line text input field. |

**6. Define File handling in PHP**

File handling is an important part of any **web application**. PHP has several functions for **creating, reading, uploading, and editing files**.

**7. Define Browse button in HTML.**

Browse button is used to **upload a single file** or **multiple files**. It is one of the types of **button**.

**8. Write Syntax of Browse button in HTML.**

**Syntax:**

<input type = “file” name = “myfile”>

**9. Compare Text box and Text Area.**

| Text Box | Text Area |
|---|---|
| Text box is generally used for **collecting information** such as **names, email address** etc.<br><br>**Tag:** <input> | Text Area is generally used for **feedback or comments**. It is a **multiline** text.<br><br>**Tag:** <textarea> |

**10. Usage of File open function.**

***fopen()*** is helps to open a file in the server. It contains **Two parameters 1.** File

**2.** Read/Write mode.

**3 Mark**

**1.Write the features of Form Handling.**

- → Forms are used to get **input** from the **user** and **submit** it to the **web server** for processing.
- → Form tag contains **input box, check boxes radio buttons** etc.
- → It is a **back-end** application. **Form tag <form> </form>.**

**2. Write the purpose Get method and Post method.**

- **Get method** displays the form values in the **URL**. **$_GET [variable name];**
- The users to book mark the results.
- **Post method** is when submitting login details to the **server**. **$_POST [variable name];**

**3. Differentiate Get and Post Method.**

| GET | POST |
|---|---|
| Values **visible** in the URL | Values **not visible** in the URL |
| Supports **only string** data types. | Supports **many** different data types such as **string, numeric, binary** etc. |
| **Faster** to send the request | **Little slow** compare to get method. |

**4. Write short notes on File handling.**

File handling is an important part of any **web application**. You often need to **open** and **process** a file for different tasks. File handling is done by using **any programming language**.

**5. Write short notes on File handling functions.**

| | |
|---|---|
| **fopen()** | **open** a file in the server. |
| **fread()** | **read** a file in the server |
| **fclose()** | used to **close** an opened file. |
| **fwrite()** | used to **write** a file |

**5 Mark**

**1.Explain Form handling methods**

| **1.GET method** | **2.POST method** |
|---|---|
| The input data sent to the **server** with POST method via **URL address** is known as query string. All input data are **visible** by user after they clicks the submit button. | The input data sent to the **server** with POST method is stored in the request body of the clients HTTP request. |
| **3. Example:**<br><html><br><body><br><form action= "welcome.php"method="post"><br>**Name**:<input type="text" name="name"><br><br>**E-mail**:<input type="text"name="email"><br><br><input type="**submit**"><br></form><br></body><br></html> | **Welcome.php**<br><html><br><body><br>**Welcome**<br><?php echo $_POST["name"]; ?> <br><br>**Your email address is:**<br><?php echo _POST["email"]; ?><br></body><br></html> |

**Output**

Name: sethuraman
E-mail: srssethuraman@gamail.com
Submit

**Output**
Welcome sethuraman
Your email address is: srssethuraman@gamail.com

**2. Discuss in detail about HTML form controls.**

| Values of type attribute | Description |
|---|---|
| **Text** | Create a **Text box**. All kind of text input such as **name, address** etc., |
| **Password** | Similar as Text box. But, while **entering data** ,the **characters** are appearing as coded symbols such as **Asterisk**. |
| **Check box** | Check box is a **small square box**. It is used to select **multiple** options. |
| **Radio button** | Radio button is a **small circle**. It is used to select **any one** of the multiple options. |
| **Reset** | It is a special command button used to **clear all the entries** made in the **form**. |
| **Submit** | It is also special command button used to **submit all the entries** in the **form.** |
| **Button** | It is a standard **graphical button** on the form used to call functions on click. |

**3. Explain the process File handling**

File handling is an important part of any **web application**. You often need to open and process a file for different tasks.File handling is done by using **any programming language**.

PHP has several functions for **creating, reading, uploading, and editing files**.

| 1.Five major operations file are | 2.Steps for Processing a File |
|---|---|
| ★ Creation of a new file<br>★ Opening a n existing file.<br>★ Reading data from a file.<br>★ Writing data in a file.<br>★ Closing a file. | • Declare a file pointer variable.<br>• Open a file using fopen() function.<br>• Process the file using the suitable function.<br>• Close the file using fclose() function. |

**4. Explain in detail of File handling functions.**

<table>
<tr><th colspan="2">File handling Functions</th><th>Example</th></tr>
<tr><td colspan="2"><u>1.PHP Open a File</u><br>The fopen() is a system function. This function helps to open a file in the server.</td><td rowspan="2"><?php<br>$myfile = fopen(“student. txt”,”r”) or die (“Unable to open file”);<br>?></td></tr>
<tr><td>syntax</td><td>$file_Object = fopen(“File”, ”Read/Write Mode”) or die(“Error message”);</td></tr>
<tr><td colspan="2"><u>2.PHP Read a File</u><br>The fread() function reads from an open a file.</td><td rowspan="2"><?php<br>fread($myfile.filesize(“student.txt”));<br>?></td></tr>
<tr><td>syntax</td><td>fread($file_object, filesize(“filename”));</td></tr>
<tr><td colspan="2"><u>3.PHP Close a File</u><br>The fclose() function is used to close an opened file.</td><td rowspan="2"><?php<br>$myfile = fopen(“student.txt”, “r”);<br>fclose($myfile);<br>?></td></tr>
<tr><td>syntax</td><td>fclose($file_Object);</td></tr>
<tr><td colspan="2"><u>4.PHP Write a File</u><br>The fwrite() function is used to write a to a file.</td><td rowspan="2"><?php<br>$myfile= fopen(“new_file.txt”, “w”);<br>$txt = “school name”;<br>fwrite($myfile,$txt);<br>fclose($myfile);<br>?></td></tr>
<tr><td>syntax</td><td>fwrite($myfile, $txt);</td></tr>
<tr><td colspan="2"><u>5.PHP Appending a File</u><br>The file_put_contents() function is used to Append to a file.</td><td rowspan="2"><?php<br>$txt=”student id”;<br>$myfile=<br>file_put_contents(“FILE_APPEND”);<br>?></td></tr>
<tr><td>syntax</td><td>file_put_contents(file,data,mode,context);</td></tr>
<tr><td colspan="3"><u>6.PHP Uploading a File</u><br>File upload is the best feature to select one file from the local machine to server machine.<br>“file_uploads = On”</td></tr>
</table>

# 9. CONNECTING PHP AND MYSQL

**2 Mark**

**1.What are the MySQLi function available PHP?**

- *Mysqli_connect()* Function
- *Mysqli_close()* Function
- *Mysqli_select_db()* Function
- *Mysqli_affected_rows()* Function
- *Mysqli_connect_error()* Funciton
- *Mysqli_fetch_assoc()* Function

**2. What is MySQLi function?**

MySQLi is extension in **PHP scripting language** which gives access to the MYSQL database. MYSQLi extension was introduced version 5.0.0.

**3. What are the types MySQLi function available PHP?**

- *Mysqli_connect()* Function
- *Mysqli_close()* Function
- *Mysqli_select_db()* Function
- *Mysqli_affected_rows()* Function
- *Mysqli_connect_error()* Funciton
- *Mysqli_fetch_assoc()* Function

**4. Difference between Connection and Close function?**

| Connection Function | Close Function |
|---|---|
| This function is used to **connect the data base** server machine PHP scripting language. | This function is used to **close an existing opened database** connection between PHP and MySQL Database Server. |
| This function requires **four parameters** to connect to database server. | This function requires only **one parameter** to connect to database server. |

**5. Give few examples of MySQLi Queries.**

- ✪ mysqli_query($con, "**SELECT * FROM** Person");
- ✪ mysqli_query($con, "**INSERT INTO** Persons (Name, Age) **VALUES** ('name',18)");

---

**6. What is connection String?**

A connection string is a string that specifies **information** about a **data source and connecting to it.**

---

**7. What is web Database?**

A web database is a database application designed to be **managed and accessed** through the **Internet**.

---

**8. What is mysqli_fetch_assoc() Function?**

- ✍ The mysqli_fetch_assoc() function **fetches result row** as an **associative array**.

**Syntax:** *mysqli_fetch_assoc(result);*

---

**9. Define mysqli_connect_error() Function**

- ✍ The mysqli_conncet_error() function returns error description from the last connection.

**Syntax:** *mysqli_connect_error();*

---

**10. Define mysqli_affected_rows() function**

- ✍ The Mysqli_affected_rows() function returns the number of affected rows in the previous **SELECT, INSERT, UPDATE, REPLACE, or DELETE** query.

**Syntax:** *mysqli_affected_rows(connection);*

---

**3 Mark**

**1. Write the Syntax for MySQLi Queries**

**Syntax:** *mysqli_query( "Connection Object", " SQL Query" );*

**2. Write is the purpose of MySQLi function available.**

MySQLi is extension in **PHP scripting language** which gives access to the **MYSQL database**. MYSQLi functions are designed to **communicate with MySQL**.

**3. Differentiate mysqli_affected_rows() function and mysqli_fetch_assoc() function**

| Mysqli_affected_rows() | Mysqli_fetch_assoc() |
|---|---|
| The mysqli_affected_rows() function returns the number of affected rows in the previous **SELECT, INSERT, UPDATE, REPLACE, or DELETE** query. | The mysqli_fetch_assoc() function **fetches result row as an associative array.** |
| **Syntax:***mysqli_affected_rows(connection);* | **Syntax:** *mysqli_fetch_assoc(result);* |

**4. Write MySQL Connection syntax with example**

**Syntax**

*mysqli_connect( "servername", "username", "password", "DB Name" );*

**Example:** *$conn = mysqli_connect($dbhost, $dbuser, $dbpass, $dbname);*

**5. Write a note PHP MySQL database connection**

- PHP and MySQL has become very popular server side web scripting language in Internet.
- MySQL and PHP scripting language connectivity, which covers **Database connection establishment, Database Selection, SQL statement execution, and Connection termination.**

**5 Mark**

1. **Discuss in detail about MySQL functions with example**

MySQLi is extension in PHP scripting language which gives access to the MYSQL database. MYSQLi extension was introduced version 5.0.0.

- ➔ MySQL COUNT Function
- ➔ MySQL MAX Function
- ➔ MySQL MIN Function
- ➔ MySQL AVG Function
- ➔ MySQL SUM Function

1. The MySQL COUNT function is used to **count the number of rows** in a database table.

   **Example:** mysql>SELECT COUNT (*) FROM employee;

2. The MySQL MAX function is used to select the **highest value** for a certain column

   **Example** mysql> SELECT MAX(Number)-> FROM employee;

3. The MySQL MIN function is used to select the **lowest value** for a certain column.

   **Example:** mysql> SELECT MIN(Numberr)->FROM employee;

4. The MySQL AVG function selects the **average value** for certain table column.

   **Example:** mysql> SELECT AVG (Number) -> FROM employee;

5. The MySQL SUM function is used to selecting the **total** for a numeric column.

   **Example:** mysql> SELECT SUM(Number)-> FROM employee;

# 10. INTRODUCTION TO COMPUTER NETWORKS

**2 Mark**

**`1.Define Computer Network**

A set of **computers** connected together for the **purpose of sharing resource** is called as computer networks.

**2. Define Internet**

The Internet is a network of **global connections** comprising **private, public, business, academic and government** networks linked by **wireless** and **fiber-optic** technologies.

**3. What are the common uses of computer Network.**

- Communication
- Resource Sharing
- Data or Software sharing
- Money savings

**4. List out some feature of Mobile Network.**

- Less consumption of power
- Huge capacity than a large transmitter, at single frequency
- Covering large area than a single transmitter

**5. Difference between wired and wireless networks.**

| Wired Network | Wireless Network |
|---|---|
| A wired network system connected **with** network cable. | A wireless network is connecting Devices **without** cables |
| **Example:** Speakers, CCTV, Printers etc., | **Example:** WiFi Tablets, Indoor cameras etc., |

**3 Mark**

**1.Define ARPANET**

First in 1969, **A**dvanced **R**esearch **P**rojects **A**gency **N**etwork, **four nodes** of connected between **four universities** using the **50kbps** circuits.

**2. What is the usage of cloud storage and cloud computing?**

**Cloud Storage:** Just a storage of data on online, **access in different area** .

**Cloud Computing:** It is based on Internet computing, to **share resources, software and information.**

**3. What is meant by Artificial Intelligence?**

Artificial intelligence will help to **maintain, manage, speech recognition, learning**, **planning, problem solving and protect** it.

**4. List out some usefulness of social networks.**

- Group information sharing over long distances.
- Broadcast announcements.
- Fostering diversity of thought.

**5. How computer networks saves the money saving?**

Computer networking, It's important financial aspect for **organization** because it saves money. It reduces the **paper work, man power and save the time.**

**5 Mark**

**1.Mention some uses of network at <u>business, home, mobile, social</u> application.**

**Business** **:** Resource Sharing, Server Client Model, Communication Medium, E- Commerce

**Home** **:** Access to remote information, Person to person communication, interactive entertainment, E-commerce.

**Mobile** **:** Hotspots, SMS, GPS, Connectivity etc.

**Social App** **:** Twitter, Face book, Whatsapp, etc.,

**2.Define computer networking and Internet. Explain different developments on compute network and Internet.**

| S. No | Period | Method | History |
|---|---|---|---|
| 1 | Late 1950 | SAGE(**S**emi-**A**utomatic **G**round **E**nvironment) | U.S **Military** Radar System |
| 2. | 1960 | SABRE(**S**emi **A**utomatic **B**usiness **R**esearch **E**nvironment) | Online connected with **Two main frame computers.** |
| 3. | 1963 | **I**ntergalactic **C**omputer **N**etwork | Computer engaged to access **communication with users** of computes. |
| 4. | 1965 | **T**elephone **S**witch | First widely used Telephone switch was introduced by **Western Electric** |
| 5. | 1966 | WAN(**W**ide **A**rea **N**etwork) | Published by **Thomas** and **Lawrence** in the area of time sharing. |
| 6. | 1969-1970 | **ARPANET** | First in 1969, **A**dvanced **R**esearch **P**rojects **A**gency **N**etwork, **four nodes** of connected between **four universities** using the **50kbps** circuits. |
| 7. | 1972 | X.25 **TCP/IP** | Using **commercial services** for expanding TCP/IP networks. |
| 8. | 1973 | **Hosts** | Reliable **delivery of data**. |
| 9. | 1973-1979 | **Ethernet** | Distributed **Packet switching** for local Computer Networks. |
| 10. | 1976 | **ARCNET** | First to share the **storage device** in 1976. |
| 11. | 1995 | **New FIBRE OPTIC CABLES** | Highest speeds up to **100 Gbps** to grow easily |

**3. Explain the Growth of the computer Networking or Explain about the development, merits and demerits in Mobile networks**

| Generation | Start | Data Bandwidth | Technology | Service | Switching |
|---|---|---|---|---|---|
| **1G** | 1970-1980 | **2.4 Kbps** | Analog Cellular | Voice | Circuit |
| **2G** | 1990-2000 | **64 Kbps** | Digital Cellular | SMS | Circuit, Packet |
| **2.5G** | 2001-2004 | **144 Kbps** | GPRS,EDGE, CDMA | SMS,MMS | Packet |
| **3G** | 2004-2005 | **2 Mbps** | CDMA 2000,UMTS, EDGE | Audio, Video and data | Packet |
| **4G** | 2011 –Now | **100 Mbps** | WiMax LTE WiFi | Dynamic Information Access | All Packet |
| **5G** | Soon(2020) | **More than 1Gbps** | WWWW | Wearable Devices with AI Capabilities | All Packet |

# 11. NETWORK EXAMPLES AND PROTOCOLS

**2 Mark**

**1.Define Intranet**

Intranet is a website used by **organization** to provide a place where employees can access **company related information.**

**2. What are the uses of mobile networks?**

- ➔ Can connect the network without cable
- ➔ Less consumption of power
- ➔ Huge capacity than a large transmitter
- ➔ Covering large area than a single transmitter.

**3. List out the benefits of WIFI**

- 💻 It provides mobility.
- 💻 It provides connection to internet.
- 💻 Flexibility of LAN.
- 💻 Ensures connectivity.

**4. How many types of RFID system available and what are they?**

- ☐ Active RFID
- ☐ Passive RFID

**5. Expand HTTP, HTTPS, FTP**

- 🗲 HTTP – Hypertext Transfer Protocol
- 🗲 HTTPS – Hypertext Transfer Protocol Secure
- 🗲 FTP – File Transfer Protocol

**3 Mark**

**1.Compare Internet, Intranet and Extranet.**

| Internet | Intranet | Extranet |
|---|---|---|
| Public | Private | Private |
| Large number of connected devices | Limited number of connected devices | Limited number of connected devices over Internet |
| Not owned by anyone | Owned by a particular organization | Owned by one or more Organizations. |
| WWW, Email, Social media | Departments, company, organizations. | Suppliers, customer, and vendors. |

**2. List out the components of a RFID enabled system.**

- **RFID tag:** It has **silicon microchip** attached to a **small antenna** and **mounted** on a substrate.
- **Reader:** It has a scanner with antennas to **transmit and receive** signals, used for **communication**.
- **Controller:** It is the **host computer** with a microprocessor which receives the reader **input and process the data.**

**3. Write short notes on HTTP, HTTPS, FTP**

- **HTTP** – It is used between a web client and a web server and it guarantees non-secure data transmissions.
- **HTTPS-** It is used between a web client and a web server ensures secure data transmissions.
- **FTP-** It is used between computers for sending and receiving file.

**4. What are the layers available in TCP/IP Reference Model?**

- Application Layer
- Transport Layer
- Internet Layer
- Network Access Layer

**5. Expand ARP, ICMP, SMTP and DNS.**

- **ARP**- Address Resolution Protocol
- **ICMP**- Internet Control Message protocol
- **SMTP**-Simple Mail Transfer Protocol
- **DNS**- Domain Name System

**5 Mark**

**1.Explain about Internet, Intranet, and Extranet**

- **Internet:** Several networks**, small and big all over the world**, are connected together to form a **Global network** called the Internet.
- **Intranet:** It is a **website** used by **organization** to provide a place where employees can access **company related information.**
- **Extranet:** It is a **private network** using Internet technology to share part of business information with **supplier's partners and customers.**

**2. Discuss about OSI (Open System Interconnection)model with its layers.**

| OSI Layers | Definition |
|---|---|
| 1. Physical Layer | This is the 1st layer, it defines the **electrical and physical** specifications for **devices**. |
| 2. Data Link layer | This is the 2nd layer, it guarantees that the **data transmitted**. "802.3 for **Ethernet"** and "802.11 for **Wi-Fi"** |
| 3. Network layer | This is the 3rd layer, determining the **path of the data** packets is using **IP Address**. |
| 4. Transport layer | This is the 4th layer guarantees the **sending data is successful**. It includes error checking operation. |
| 5. Session layer | This is the 5th layer identifies the **system session** between **different network** entities. |
| 6. Presentation layer | This is the 6th layer **Encryption and decryption** protocols occur in this layers such as Secure Socket Layer**(SSL)** |
| 7. Application layer | This is the 7th layer it acts the **user interface** platform comprising of **software within the system**. |

**3. Difference between TCP/IP and OSI Reference Model.**

| TCP/IP | OSI |
|---|---|
| Implementation of OSI Model | Reference Model |
| 4 Layers | 7 Layers |
| Horizontal approach | Vertical approach |
| Supports only connection less Communication. | Supports connectionless and connection-oriented communication |
| Protocol dependent standard | Protocol independent standard |
| Considered more reliable | Considered a reference tool |

## 12. DNS (Domain Name System)

**2 Mark**

**1.List any four domain names.**

- .com
- .edu
- .gov
- .net

**2. What is an IP address?**

- Internet Protocol address is the logical address in the **network layer.**
- IP address is also used to **find the host system in the whole network.**

**3. What are the types of IP address?**

- IPv4 Address
- IPV6 Address

**4. What is an URL?**

- URL (**U**niform **R**esource **L**ocator) is the address of a **document on the Internet**.
- URL is made up four parts **protocols, host name, folder name and file name**.

**5. List out four URLs you know**

- http://www.google.com
- http://www.yahoo.com
- http://www.facebook.com
- http://www.gmail.com

**6. What are the types of URL?**

- Absolute URL
- Relative URL

**7. What is a domain?**

Domain is a **sub tree,** in domain name space **tree structure**. The domain can be further divided into sub domains.

**8. What is a Zone?**

A group of **contiguous domains** and **sub domains** in the **Domain Name Space**.

**9. What is a resolver?**

A program which is responsible for **initiating the translation** of a **domain name** into an **IP Address.**

**10. What are the categories available in domain name space?**

- ☺ Commercial Organization
- ☺ Educational Institutions
- ☺ Government
- ☺ Military groups

**11. Write any four generic Top Level Domain**

- Com - Commercial Organization
- Edu - Educational Institutions
- Gov - Government
- Mil - Military groups

**3 Mark**

**1.Write a note on DNS.**

**D**omain **N**ame **S**ystem an internet service that translates **domain name into IP Address**.

**Ex:** www.google.com IP Address: 198.105.232.4

**2. Differentiate IPv4 and IPv6.**

| IPv4 | IPv6 |
|---|---|
| 32 bits | 128 bits |
| Binary and Dotted-decimal notation | Hexadecimal notation |
| 4billion addresses | 16 billion addresses |

**3. Differentiate Domain Name and URL**

| Domain Name | Uniform Resource Locator (URL) |
|---|---|
| An identification string that helps to **uniquely** identify a **specific website** | Address of a **specific webpage or a website** on the internet. |
| **Ex**: google.com | **Ex:** http://www.google.com// |

**4. Difference between Absolute URL and Relative URL**

| Absolute URL | Relative URL |
|---|---|
| Used to link web pages on **different websites** | Used to link web pages within the **same website.** |
| **Difficult** to manage. | **Easy** to manage. |
| **Protocols, hostname, folder name and file name** | **Folder name and file name.** |

**5. Write a note on domain name.**

Domain name is the **sequence of labels separated by dot (.).** The domain name is always read from the **leaf node to root node**. The root node always represent **NULL** string. So All the domain name ends with dot.

**6. Differentiate web address and URL**

| Web Address | URL |
|---|---|
| A web Address more commonly defines a **unique name** that helps people remember a URL | A URL is the address of a particular **website or document** available on the web. |
| It is like a memorable **street address**, can help **people find you online**. | It is the **Internet address** of a particular site or document available the **world wide web**. |

**5 Mark**

**1. Classify and Explain the IP address.**

Internet Protocol address is simply the **logical address** in the **network layer**. **Ex:** The **door number or flat number** is used to differentiate individual house from others in the same apartment IP address is also used to find the host system in the whole network.

| Heading | Internet Protocol Version 4 | Internet Protocol Version 6 |
|---|---|---|
| **Deployed** | 1981 | 1999 |
| **Address Size** | 32-bit number | 128-bit number |
| **Address Format** | Dotted Decimal Notation | Hexadecimal Notation |
| **Notation** | 192.149.252.76 | 3FFE:F200:0234:AB00: 0123:4566:8901:ABCD |
| **Configuration** | Manually or DHCP | Auto-configuration or DHCP |
| **Number of Address** | $2^{32}$ = 4 billion address | $2^{128}$ = 16 billion address |
| **Address types** | unicast, multicast, broadcast | unicast, multicast, anycast |
| **Packet Fragmentation** | Routers and sending hosts | Sending hosts only |

**2. Explain briefly the components of DNS.**

**1. Namespace 2.Name server 3.Zone**

❶ **Name Space**

The domain names must be very unique and appropriate. The names should be selected from a namespace.

- Flat name space
- Hierarchical name space

**Flat name space**

Flat name space is where the name is assigned to the IP address. They do not have any specific structure.

**Hierarchical name space**

Hierarchical name space is where the name is made up of several parts.

- 1st part- Nature of Organization
- 2nd part – Name of Organization
- 3rd part –Department of Organization

❷ **Name Servers**

Name Server is a main part in the Domain Name System. It translate the domain names to IP addresses. Name server contains the DNS database .

**Types of Name Servers**

**Root Name Server** –top level server which contains entire DNS, maintained by ICANN. There are 13 servers.

**Primary/Master Name Server** – Contains a zone resource records. These records are updatable by domain name holders such as Organizations.

**Secondary/Slave Name Server** – Contains a copy of primary server files. This server has no authority to update, but reduce the workload.

❸ **Zone**

The entire name space is divided into many different zones. Zone is defined as a group of contiguous domains and sub domains. If the zone has a single domain, then zone and domain are the same.

**3. Explain about Name Server?**

- Name Server is a **main part** in the Domain name System (DNS). It translates the **domain names to IP addresses.**
- Name server contains the **DNS database** which consists of **domain names** and their corresponding **IP addresses**.
- There is a need to **store large number of domains** for the **world wide** usage.
- So, **plenty of servers** are used in the **hierarchical** manner.
- **Name servers** do the important task of **searching the domain names**.

**Types of Name Servers**

❶ **Root Name Server**

Top level server which contains **entire DNS tree, maintained by ICANN**. There are **13 servers.**

❷ **Primary/Master Name Server**

It contains a **zone resource records**. These records are **updatable** by domain name holders such as **organizations**.

❸ **Secondary/Slave Name Server**

It contains a copy of **primary server files**. This server has **no authority to update**, but reduce the workload of master server by **sharing the queries**.

**4. Explain how the DNS is working.**

➔ The users enters the URL in the browser, the system first checks its DNS cache for the corresponding IP address.

➔ If the IP address is found in the cache then the information is retrieved from cache.

➔ The system needs to query the resolver about the IP address from Internet Service Provider (ISP)

➔ Each resolver has its own cache and if it is found in that then that information is retrieved.

➔ The computer browser which is then viewed by the user.

**5. What is domain name space? Explain.**

- **Domain name space** was designed to achieve **hierarchical name space**.
- The names are represented as **a tree like structure** with **root element on the top**.
- This tree can have a maximum of **128 levels** starting from root element taking the **level 0 to level 127**.
- **Each node in the tree** has a **label** and a **domain name.**

**Label**

- It is a string which can have **maximum of 63 characters**.
- Domain is a **sub tree** in domain names space tree structure. The domain can be further divided into **sub domains.**

**Domain Name**

- It is the sequence of labels. In **domain name the sequence of labels** are separated by **dot(.).**
- The domain name is always read from the **lower level to higher level** form the **leaf node to root node.**
- The root node always represent **NULL string,** all the **domain name ending with dot**.

**Basic Rules of Domain Names**

- Domain can consists of **Alphabets a to z** and the **digits 0 to 9**
- Hyphens are allowed, but **hyphens can not be used as first character** of a domain name.
- **Spaces are not allowed.**
- **Special symbols ( !, $, &, _ ) are not permitted.**
- Domain names have **the minimum length of 2** and **the maximum length of 63** characters.
- It may by **upper, lower or mixing of both case letters**.

# 13. NETWORK CABLING

**2 Mark**

**1.Write a note on twister pair cable.**

It is type of cable with **two or more insulated wires** twister together. It started with the speed of **10 Mbps**.

**2. What are the uses of USB cables?**

**Universal Serial Bus**, connects **all the peripheral devices** with the computers.

**3. Write a note on the types of RJ45 connector.**

There are two wiring schemes available to terminate the **twister-pair cable** on each end, which are **T-568A and T-568B.**

**4. What is an Ethernet port?**

The Ethernet port is the **jack** where the **Ethernet cable** is to be connected. This port will be there in both the **computers and the LAN port**.

**5. What is the use of Crimping tool?**

The crimping tool is a **physical tool** which is used to **connect the patch wire** and the **Ethernet connector** (RJ45)

**6. What are the types of twisted pair cables?**

- Shielded Twister pair (STP)
- Unshielded Twisted Pair (UTP)

**7. What is meant by Champ connector?**

- RJ-21 connector has **50 pins with 25 pins** a the **one end and 25 pins** at the other end it is also called as **champ connector**.

**3 Mark**

**1.Write a note on crossover cables.**

The **first coloured wire at one end** of the cable is the **third coloured wire at the other end** of the cable. It is called **crossover cables**.

**2. Write a short note on RJ45 connector.**

The RJ45 Ethernet connector is a **small plastic cup** which will be used to connect the **wire inside the connector** and ready to use **to connect the Internet.**

**3. What are the differences between serial and parallel ports?**

| Serial port | Parallel port |
|---|---|
| 9 pins | 25 pins |
| Male port | Female port |
| Purple in color | Green in color |
| Slower than Parallel port | Faster than Serial port |
| 2 wires used | 8 or more wires |

**4. What is meant by null modem cable?**

A communication method directly **connects two computers** without **modem or any equipment.**

**5. What are the components involved in Ethernet cabling?**

- Patch cable (Twisted pair)
- RJ45 Connector
- Ethernet Ports
- Crimping tool

**6. What are the types of Fiber optic cables?**

Single mode cables are used for **long distance transmission** and at a high cost whereas the **multimode cables are used for short distance transmission** at a **very low cost.**

**5 Mark**

**1.What is meant by Registered Jack? Explain briefly the types of Jacks.**

**A Registered Jack commonly** known as **RJ** is a **network interface** used for network cabling, **wiring and jack** construction.

The primary function of the **registered jack** is to connect different **data equipment** and **telecommunication devices.**

**The commonly known registered jacks** are **RJ-11,JR-45,RJ-21, and RJ-28**

The **Registered Jack** refers to the **male physical connector (Plug)**, a **female physical connector (Jack)** and it's wiring.

**RJ-11**

- It is the most popular modern form of registered jack.
- It is found in home and office.
- This Registered jack is mainly used in telephone and landlines.
- There are 6 pin where
- The two pins give the transmission configuration.
- The two pins give the receiver configuration
- The two pins will be kept for reserved.

**RJ-14 and RJ-61**

- The **RJ-14 is the same as RJ-11** which will be used for **telephone lines** where same it as **6 pins** whereas the **RJ-61** will have **8 pins**.
- This **RJ-61** will use the **twisted pair cable** with a modular connection.

**RJ-21**

- **RJ-21 connector** has **50 pins** with **25 pins** at one end and **25 pins** at the other end.
- It is also called as **champ connector**.
- The **RJ-21** interface is typically used for **data communication** trucking applications.

**2. Explain wiring techniques used in Ethernet cabling.**

**There are three types of wiring techniques to construct the Ethernet cable.**

1) Straight-Through Wiring
2) Cross-over Wiring
3) Roll-over Wiring

**Straight-Through Wiring**

- Ethernet cables used for Ethernet connections are **"straight through cables".**
- These cable wires are in the same sequence at **both ends of the cable** .
- That **pin 1 of the plug on one end** is connected to **pin 1 of the plug on the other end**. **(T568A & T568B)**
- The straight through wiring cables are most used for connecting **PC/NIC card to a hub**.
- This is a simple physical connection used in **printers, computers and other network interfaces**.

**Cross-Over Wiring**

- Crossover cable is used to **connect two computers** or **Ethernet devices** directly together **without a hub.**
- That **pin 1 & 2 of the plug on one end** are connected with **pin 3 & 6 of the plug on other end.**
- The **Null modem cables** are the **example of the crossover cables**.

**Roll-over Wiring**

- **Rollover cable** is a type of **null-modem cable** that is often **used to connect a device console port** to make programming changes to the device.
- That **pins on one end** are connected with **other end** in **reverse order.**
- Rollover cable is also known as **Yost cable or console cable** .

**3. Explain the components used in Ethernet cabling.**

**Three main components are used in the Ethernet cabling.**

1. Patch cable (Twisted pair)
2. RJ45 Connector
3. Ethernet Ports
4. Crimping Tool

❶ **Patch Cable (Twisted Pair)**

These cable are generally made up of **8 wires in different colors.**

Four of them are **solid colors** and the others are **striped.**

The eight colors are **1.White green, 2. White orange, 3. White blue, 4. White brown**

❷ **RJ45 Connector**

The RJ45 connector is a **small plastic cup** which will be used to connect the wire inside the connector and ready to connect the Internet.

Each **RJ45 connector** has **eight pins** and connected to **each end of the Ethernet cable.**

There are Two wiring schemes available to the twisted-pair cable on each end, which are

**T-568A** and **T-568B**

❸ **Ethernet card and Port**

Ethernet card is a **Network Interface Card** (NIC) that allows **computers to connect** and **transmit data** to the devices on the network.

Ethernet card which is inserted into **PCI slot on motherboard** of a computer.

Now a days' most of the computers come with built-in Ethernet cards which resides on **motherboard.**

❹ **Crimping tool**

The Crimping tool is a **physical tool** which is used to **connect the patch wire** and the **Ethernet connector** (RJ45)

The crimping tool looks like a **small cutting handle** with two mold of **Ethernet port.**

**4.Explain the type of Network Cables.**

❶ **Coaxial Cables**

- This cable was invented at late **1880's** which is used to connect the **television sets** to **home antennas**.
- This cable is used to **transfer information in 10 mbps**. The cable is divided into **thinnet** and **thicknet cables.**
- **Coaxial cables** are also used for **dish TV** where the **setup box** and **television** is connected using the **coaxial cable** only.

❷ **Twisted Pair Cables**

- It is type of cable with **two or more insulated wires** twisted together. It started with the speed of **10 mbps.**
- There are two types of **twisted pair cables**, **Unshielded Twisted Pair and Shielded Twisted pair cables**

❸ **Fiber Optics:**

- This cable strands of glass and **pulse of light** is used to send the information.
- They are mainly used in **Wide Area Network** (WAN)
- These cables are placed in **deep underground to avoid any damage** to the cables.
- Single-mode cables are used for **long distance transmission** and at a high cost.
- Multi-mode cables are used for **short distance transmission** at a very low cost.

❹ **USB Cables**

- The Universal Serial Bus are used to connect **keyboard, mouse and other peripheral devices.**
- To connect the Internet through the **USB called dongles**.
- The dongle is a small peripheral device with a **sim slot and connects the Internet**.

❺ **Serial and Parallel cables**

- In the year of **1980s to 1990s** the Ethernet and the USB were not developed.
- Then the Serial and Parallel interface cables are used to connect the **Internet to the system.**
- The serial port will send **1 bit at one time**. The parallel port will send **8 bit at one time.**
- Parallel cables are used to connect to the **printer and other disk drivers**.

❻ **Ethernet Cables**

- Ethernet cable is the most common type of network cable mainly used for connecting the **computer or devices** at **home or office**.
- This cable connects wired devices within the **local area network** for sharing the resources and accessing Internet.
- This cable works at a speed of **10Gbps and more**.

**3. Explain about RJ45 Connector**

- The RJ45 connector is **a small plastic cup** which will be used to connect the wire inside the connector and **ready to connect the Internet**.
- The RJ45 connector looks similar like a **telephone jack** but it looks a slightly wider.
- The Ethernet cables are sometime called as **RJ45 cables.**
- In RJ45 the "RJ" stands for the **Registered Jack** and "45" simply refers to the number of interface standard in the cable.
- Each RJ45 connector has **eight pins** and connected to each end of the **Ethernet cable.**
- There are Two wiring schemes available to the twisted-pair cable on each end, which are **T-568A and T-568B**

# 14. OPEN SOURCE CONCEPTS

## 2 Mark

**1.What is meant by network simulator?**

A network simulator is a **software program** that replicates the functioning of a **computer network.**

**2. What is trace file?**

A **document file**, consists of **every incident** happens in a **simulation.**

**3. Write short notes on NS2.**

**Network Simulator Version 2** : **OTCL** and **C++** used to create and run NS2. It works on **Windows** and **Linux** that supports **wired or wireless** network.

**4. Explain NRCFOSS**

**N**ational **R**esource **C**entre for **F**ree and **O**pen **S**ource **S**oftware an Institution of **Government of India**. To help in development of **FOSS** in India.

**5. Write short note on Open NMS?**

**Open NMS** (**N**etwork **M**anagement **S**ystem) is a **free** and **open-source** initiative grade network **monitoring** and **management** platform.

## 3 Mark

**1.What are the uses of Open source Network Software?**

- ➔ Select and use any software
- ➔ Without any cost and restrictions.
- ➔ Software are very user friendly.
- ➔ Program writing skills.

**2. Explain Free software.**

Free software a concept developed in the **1980s** by an **MIT computer science** researcher, **Richard Stallman** is defined by four conditions, by the nonprofit Free Software Foundation.

**3. List out the Popular Open Source Software.**

| | |
|---|---|
| ○ NS2 | ○ Open Office |
| ○ OPEN NMS | ○ ANDROID |
| ○ MySQL | ○ PHP |
| ○ PDF Creator | ○ FIREFOX |

**4. Write note on open source hardware.**

| | |
|---|---|
| ☐ Remix | ☐ Redistribute |
| ☐ Remake | ☐ Resell |
| ☐ Remanufacture | ☐ Study and Learn |

**5. What are the main functional areas of Open NMS?**

**Service Monitoring** : Network based services **ICMP, HTTP, DNS**

**Data Gathering** : using **SNMP** and **JMX**

**Event Management and Notifications**: **alarm** and **robust** announcement system.

**6. Explain Types of organizations related to Open Source Software**

- ☑ Apache Software foundation
- ☑ The Document Foundation
- ☑ The Eclipse Foundation
- ☑ Free Software foundation
- ☑ Linux Foundation
- ☑ Open Course Ware Consortium
- ☑ Open Source Initiative

**5 Mark**

**1.Differentiate Proprietary and open source software.**

| Proprietary Software | Open Source Software |
|---|---|
| It is owned by the **individual or organization** | It is developed and tested through **Open Collaboration** |
| The Project is managed by **developers and programmers** | The Project is managed by **group of individuals or team work.** |
| It provides **limited scope** with **restrictions** and all | It provides better **flexibility** and **more freedom** |
| **Not Edit** the source code | **Edit** the source code |
| **Ex:** Android, Firefox etc., | **Ex:** Windows, Mac Os etc., |

**2. List out the Benefits of Open Source Software**

- There are many open source software's. so, we can select and use any software.
- The complete options of the software can be used without any cost and restrictions.
- We can share our ideas with the team, write the required code and share it with many.
- We can learn many ideas and make our program writing skills more efficient.
- Many open source software are very user friendly.

**3. Explain various Open Source License.**

| | |
|---|---|
| 1. Apache License 2.0 | 6. MIT License |
| 2. BSD 3-Clause "New" or "Revised" license | 7. Mozilla Public License 2.0 |
| 3. BSD 2-Clause "Simplified" or "FreeBSD" license | 8. Common Development and Distribution License |
| 4. GNU General Public License(GPL) | 9. Eclipse Public License |
| 5. GNU Library or "Lesser" General Public License(LGPL) | |

## 15. E-COMMERCE

**2 Mark**

**1.Define E-Commerce.**

E-Commerce can be described as the process of **buying or selling products, services or information via Internet.**

**2. Distinguish between E-Business and E-Commerce.**

| E-Commerce | E-Business |
|---|---|
| Subset | Superset |
| Commercial transactions | Business transactions |
| Website | Website, CRM, ERP etc., |
| Internet | Internet, Intranet, Extranet |

**3. Differentiate tangible goods and electronic goods with example of your own.**

| **Tangible** | **Electronic(intangible)** |
|---|---|
| They have a physical Existence. | They do not have a physical Existence. |
| **Ex:** Vehicle, plant, machinery etc., | **Ex:** Software, Logo, patent etc., |

**4. What is dotcom bubble and dotcom burst?**

★ The Dotcom Bubble was a historic excessive growth.

★ The Dotcom Burst was Nasdaq-Composite stock market index.

**5. Write a short note on out-sourcing.**

✸ Hiring third party service providers to handle business on behalf.

**6. Write a short note on the third wave of E-Commerce.**

The third wave is brought on by the **mobile technologies**. It connects users via mobile devices for real-time and on-demand transactions.

**3 Mark**

**1.Describe how E-Commerce is related to socio-technological changes.**

- Growth of E-Commerce is also related to the socio-technological changes.
- Increase of users, increases the markets.
- Technology facilitates E-Commerce's growth.

**2. Explain B2B module in E-Commerce.**

B2B E-Commerce, commercial transactions take place between different **business organizations**, through the Internet. **Ex:** A cycle company may buy tyres from another company for their cycles.

**3. Write a note on name-your-price websites.**

These websites generate revenue through affiliate links, **sponsored advertisement** or even a **small commission in every booking. Ex:** Name-your-price websites.

**4. Write a note on physical product dispute of E-Commerce.**

Physical product disputes are **a major disadvantage** in E-commerce. E-commerce purchases are often made on trust. This is because, we do not have physical access to the product.

**5 Mark**

**1.Write about the development and growth of Electronic Commerce.**

❶ **The First Wave of Electronic Commerce: 1995-2003**

The **Dotcom companies** of first wave are mostly American companies. Websites were only in English.

❷ **The Second Wave of Electronic Commerce: 2004-2009**

The second wave is the rebirth of E-Commerce after the dotcom burst. The second wave is considered as the **global wave**.

❸ **The Third Wave of Electronic Commerce: 2010-Present**

The third wave is brought on by the **mobile technologies**. It connects users via mobile devices for real-item and on-demand transactions.

**2. List all the E-Commerce Business models and explain any four briefly.**

1. Business to Business (B2B)
2. Business to Consumer (B2C)
3. Business to Government (B2G)
4. Consumer to Business (C2B)
5. Consumer to Consumer (C2C)
6. Consumer to Government (C2G)
7. Government to Business (G2B)
8. Government to Consumer (G2C)
9. Government to Government (G2G)

**1. Business to Business (B2B)**

B2B E-Commerce, commercial transactions take place between different **business organizations**, through the Internet. **Ex**: A cycle company may buy tyres from another company for their cycles.

**2. Business to Consumer (B2C)**

B2C E-Commerce, commercial transactions take place between **business firms** and their c**onsumers**. **Ex:** A book company selling books to customers.

**3. Business to Government (B2G)**

B2G is a business model that refers to **business organizations** sells products, services or **information to Governments**. **Ex:** A Government buys laptops for students from a business.

**4. Consumer to Business (C2B)**

C2B is websites generate revenue through affiliate links, **sponsored advertisement** or even a **small commission in every booking**. Ex: Name-your price websites.

**5. Consumer to Consumer (C2C)**

C2C in E-Commerce provides opportunity for **trading of products or services** among consumers **who are connected** through the Internet. **Ex**: Olx.com

**6. Consumer to Government (C2G)**

C2G models usually include **income tax or house tax payments**, fees for certificates or other documents. **Ex:** People paying for renewal of license online.

**7. Government to Business (G2B)**

G2B is a part of e-governance, provides information about business rules, requirement and **permission needed for starting new business**. **Ex:** websites support auctions, tenders and application submission.

**8. Government to Consumer (G2C)**

G2C in E-Commerce is very similar to C2G. The government provides platform for its **citizens to services** and information through internet. **Ex:** paying taxes, registering vehicles etc.,

**9. Government to Government (G2G)**

G2G is the **online interaction between Government organizations** or departments.

**Ex:** internal facing or local level, External facing or international level.

**3. How would you differentiate a traditional commerce and E-Commerce?**

| Traditional Commerce | E-Commerce |
|---|---|
| Traditional commerce is **buying or selling** of products and services physically. | E-Commerce carries out **commercial** transactions electronically on the Internet. |
| Scope of business in limited to **particular area.** | Scope of business is **global.** |
| Resource focus **supply side**. | Resource focus **Demand side.** |
| Business Relationship is **Linear** (face to face). | Business Relationship is **End-to-end.** |
| Marketing is **one way** marketing. | **One-to-one** marketing. |
| **Payment**: is made by cash, cheque, cards etc. | **Payment**: credit card and through fund transfer |
| Most goods are delivered **instantly**. | It **takes time** to transport goods. |

**4. Explain any five E-Commerce revenue models.**

❶ **Affiliate site**

The affiliate site may be a **price comparison service or shopping**. **Ex:** offering more information.

❷ **Auction site**

Auction site is a kind of website, that **auctions items on the Internet** and some commission from the sales **Ex:** ebay.com

❸ **Banner advertisement site**

Banner advertisement site **displays advertisements of other companies** in its websites and earns revenue.

❹ **Bulk-buying sites**

Bulk-buying sites collect a number of users together all of who want to buy similar items. The site negotiates a **discount with the supplier** and **takes a commission**.

❺ **Digital publishing sites**

This sites **e-books or magazines** on the web. Profits in a number of ways such as **advertising, selling** etc.,

❻ **Licensing sites**

Licensing sites allow other **websites to make use of their software**. **Ex:** search engines which allow a visitor of the site to search within the website more easily.

❼ **Name-your-price sites**

It is normal **retail sits**. The retailer for a **particular product or service**.

❽ **Online shopping mall site**

It allows **multi E-Commerce traders** to assemble together on a **single website**.

**Ex:** All sell Luxury goods.

**5. What are the advantages and disadvantages of E-Commerce to a consumer?**

**Advantages of E-Commerce**

- E-Commerce system is operated on **all days business 24 x 7.**
- **Speed is a major advantage** in E-Commerce.
- More **cheaper and effective** product.
- **Comparing and evaluating** the same product at **different websites.**
- Customers can shop from **home or any where.**
- **Payments** can also made through **online**.

**Disadvantages of E-Commerce**

- E-Commerce we should **wait between placing the order** and the product in hand.
- We can **see pictures of a cloth**, but **not its quality**.
- Delivery and security **issues**.
- The **possibility** of credit card number **theft**.
- **Transaction** problems.
- **Lack** of touch and **feel of product**.

# 16. ELECTRONIC PAYMENT SYSTEMS

**2 Mark**

**1.Define Electronic Payment System.**

Electronic payment refers to a payment made form **one bank account to another bank** account using **electronic methods**.

**2. Distinguish micro electronic payment and macro electronic payment.**

| Micro electronic payment | Macro electronic payment |
|---|---|
| On-line payment system designed to allow efficient and frequent **payments of small amounts.** | Macro electronic payment systems support **payments of higher value.** |
| In order to keep **transaction costs very low**, the communication and computational costs are minimized here. | The security requirements are **more rigorous** in macro payment systems because of **huge money transactions.** |

**3. List the types of micro electronic payments based on its algorithm.**

**Hash chain, Hash Collisions, Shared secrete keys, probability** based micro electronic payment systems.

**4. Explain the concept of e-wallet.**

**Electronic purses allow** users to make electronic transactions **quickly and securely**.

**5. What is a fork in crypto currency?**

The authors make only a few minor changes in parameters like **time, date, distribution of blocks, number of coins,** etc. These currencies are called as **fork.**

**3 Mark**

**1.Define micro electronic payment and its role in E-Commerce.**

Micro electronic payment is an **on-line payment system** designed to allow **efficient and frequent** payments of **small amounts**.

**Role in E-Commerce**

- Electronic payment for online transactions
- Increasingly popular due to the **widespread use** of the internet-based **shopping and banking.**

**2. Compare and contrast the credit card and debit card.**

| Credit card | Debit card |
|---|---|
| Credit card is **pay later.** | Debit card is **pay now.** |
| **Interest** is charged | **No interest** is charged. |
| To pay the credit card bill **within 30 days** of every month | The amount is **directly** deducted from the **customer's Account** |

**3. Explain briefly Anatomy of a credit card.**

- Plastic cards of size - 85.60 mm width x53.98 mm height
- Rounded corners with a radius - 2.88mm to 3.48mm
- Thickness - 0.76mm

**4. briefly explain the stored value card and its types.**

Stored value card is a **type of debit card** that is **pay before**. Customers don't need to have a **bank account**. **Types: Closed loop** (single purpose) **Ex:** Chennai **metro rail travel card**.

**Open loop** (multipurpose) **Ex: Visa** Gift cards.

**5. Write a note on mining in crypto currency**.

The **crypto currency** units are created by the solution of cryptographic tasks called **mining**. The miners not only generate **new monetary units**, but also initiate **new transactions to the block chain.**

**5 Mark**

**1.What is credit card? Explain the key players of a credit card payment system and bring out the merits of it.**

**Credit card**

- Credit card is an electronic payment system normally used for retail transactions.
- A credit card enables the bearer to buy goods or services from a vendor, based on the cardholder's promise to the value later with an agreed interest.

**Key players in opearations of credit card**

1. **Bearer**

   The holder of the **credit card account** who is responsible for **payment** of invoices in full or portion of the balance.

2. **Merchant**

   **Storekeeper or vendor** who sell or providing service, receiving payment made by its customers through the credit card.

3. **Acquirer**

   Merchant's bank that is responsible for receiving payment on behalf of **merchant send authorization requests** to the issuing bank through the appropriate channels.

4. **Credit card Network**

   It acts as the intermediate between the banks. That process **credit card payments** worldwide and interchange fees. **Ex:** Visa, MasterCard, Rupay

5. **Issuer**

   **Bearer's bank**, that issue the **credit card, set limit of purchases**, decides the approval of transactions, issue invoices for **payment, charges the holders** etc.,

**2. Briefly explain Electronic Account Transfer and its types.**

**Electronic Account Transfer**

Apart from **card based payment systems** there are many alternative electronic payment systems.

**Types of Electronic Account Transfer**

1. ECS(Electronic Clearing Services)
2. EFT(Electronic funds transfers)
3. RTGS (Real Time Gross Settlement System )

**Electronic Clearing Services (ECS)**

- Electronic clearing service can be defined as repeated transfer of funds from **one bank account to multiple bank accounts** or using computer and internet technology.

**Electronic Funds Transfer**

- Electronic Funds Transfer is the **"electronic transfer"** of money over and online network.
- Bank may charge **commission** for using this service.
- The amount sent from the **sender's bank branch** is credited to the **receiver's bank branch** on the same day in batches.

**Real Time Gross Settlement (RTGS)**

- Real Time Gross Settlement system **(RTGS)** is a payment system particularly used for the **settlement of transactions between financial institutions**, especially banks.
- Real-item gross settlement is generally employed for **large-value** interbank funds transfers.
- **High-value payment** settlements among financial institutions.

**3. Write a note on a) Internet banking b) Mobile banking**

**a) Internet banking**

- Internet banking is a **online banking, E-banking, virtual banking , direct banks, web banking and remote banking.**
- This is a **very fast** and convenient way of performing **any banking transactions**.
- The online banking system will **typically connect to the core banking** system operated by customers themselves ( Self-Service banking)
- It enables customers of a bank to conduct a wide range of **financial transactions through its website.**

**b) Mobile banking**

- The term mobile banking also called **m-banking** refers to the services provided by the **bank to the customer of mobile phones**.
- These transactions include **balance checking, account transfers, payments, purchases** etc.
- **transactions** can be done at **any time and any where**.

**4.What is crypto currency? Explain the same.**

- A crypto currency is **a unique** virtual asset designed to work as a medium of exchange using **cryptographic algorithm.**
- This algorithm secures the transactions by recording it in **block chain and controls** the creation of additional units of the **currency**.
- Crypto currency is also called as **crypto coins, e-cash, alternative currencies or virtual currencies** and are classified as a subset of digital currencies.
- Crypto currency can be defined as **distributed accounting system** based on cryptography, storing information about **the state of ownership** in conventional units.
- The state of ownership of a **crypto currency** is related to **individual system blocks** called **"portfolios".**

**5.Explain in detail: Unified Payments interface**

- **Unified Payments Interface** is a real time payment system developed by **N**ational **P**ayments **C**orporation of **I**ndia **(NCPI)** to facilitate inter-bank transactions.
- It is simple, **secure and instant payment** facility.
- UPI is developed on the basis of **Immediate Payment Service (IMPS).**
- **Global address** includes **bank account numbers** and **IFSC**.
- **Local address** is a **virtual payment** address.
- UPI **withdraws and deposits** funds directly form the bank account whenever a transaction is requested.

**Advantages.**

- **Immediate money transfers** through mobile device round **the clock 24x7**
- Can use **single mobile application** for accessing **multiple bank accounts**.
- **Single click Authentication** for **transferring** of fund.
- It is **not required** to details such as **Card no, Account number, IFSC** etc. for every transaction.
- Electronic payments will become much easier without requiring **digital wallet or credit or debit card.**

# 17. E-COMMERCE SECURITY SYSTEMS

## 2 Mark

**1.Write about information leakage in E-Commerce.**

- The content of the transaction between the **vendor and customer** is stolen by the third party.
- The documents provided by the merchant to the customer or **illegally used by the another**.

**2. Write a short note on typopiracy.**

Some **fake websites** try to take advantage of users common **typographical errors** typing a **website address** and direct users to a different website. **Ex:** www.goggle.com, www.faceblook.com

**3. Define not-repudiation.**

**Non-repudiation:** prevention against **violation agreement** after the deal.

It ensures that the signer who digitally signed the document **cannot deny** having signed it.

**4. List the different types of security technologies in E-commerce.**

- Encryption technology
- Authentication technology
- Authentication protocols

**5. Write about digital signature.**

A digital signature is a mechanism that is used to verify that a **particular digital document**, **message or transaction** is authentic.

## 3 Mark

**1.Write a note on certification authorities (CA)**

Digital certificate is an **electronic document** used to prove the ownership of a public key. This certificate includes the information about the sender's **identity, digital signatures, passports and driving licenses**. **Digital certificates** are issued by recognized **Certification Authorities** (CA).

**2. List some E-Commerce Security Threats?**

- Information leakage
- Tampering
- Payment frauds
- Malicious code threats
- Distributed Denial of Service Attacks
- Cyber Squatting
- Typopiracy

**3. Differentiate asymmetric and symmetric algorithms.**

| Symmetric Key Encryption | Asymmetric Key Encryption |
|---|---|
| **Same key** is used for both encryption and decryption | **Different keys** are used for encryption and decryption |
| Speed of encryption or decryption is **very fast** | Speed of encryption or decryption is **slow** |
| Plain text and cipher text are of **same size** | The size of cipher text is always **greater than** plain text. |

**4. Write a note on PGP.**

**P**retty **G**ood **P**rivacy (PGP) encryption uses a serial combination of hashing, data compression, symmetric-key cryptography and **works on the concept of "web of trust"**

**5. Explain 3D secure payment protocols.**

3D Secure is a **secure payment protocol** on the Internet. It was developed by **Visa** to increase the level of transaction security, ant it has been adapted by **Master Card.**

- Acquirer Domain
- Issuer Domain
- Interoperability Domain

**5 Mark**

**1.Write about dimensions of E-Commerce Security.**

- **Authenticity:** conforming genuineness of data shared.
- **Availability:** prevention against data delay or removal.
- **Completeness:** unification of all business information.
- **Confidentiality:** protecting data against unauthorized disclosure.
- **Effectiveness:** effective handling of hardware, software and data.
- **Integrity:** prevention of the data being unaltered or modified.
- **Non-repudiation:** prevention against violation agreement after the deal.
- **Privacy:** Prevention of customers personal data being used by others.
- **Reliability:** providing a reliable identification of the individuals or businesses.
- **Review ability:** capability of monitoring activities to audit and track the operations.

**2. Differentiate Digital Signatures and Digital Certificates.**

| Digital Signature | Digital Certificate |
|---|---|
| Digital Signature is a mechanism that is used to verify that a **particular digital document.** | Digital Certificate is a computer file Which **officially approves the certificate.** |
| Digital signatures are used to verify the trustworthiness of the data being **sent** | Digital certificates are used to verify the trustworthiness of the **sender.** |
| It provides **authentication, non-repudiation and integrity** | It provides **authentication and security**. |
| A digital signature is created using a **Digital Signature Standard** (DSS). **Ex:** SHA1 SHA2 | A digital certificate works o the principles of **public key cryptography standards** (PKCS). **Ex:** X.509 or PGP format. |
| The document is encrypted at the **sending end** and decrypted at the **receiving end** using **asymmetric keys.** | A digital certificate consist of certificates **owner name** and public key, **expiration date**, **Certificate Authority's name** and **digital Signature.** |

**3. Explain Encryption technology.**

❶ **Encryption technology**

Encryption technology is an **effective information security protection**. It is defined as converting a **Plaintext** into **meaningless Cipher text** using **encryption algorithm** thus ensuring the **confidentiality of the data.**

**Two Encryption technologies**

- Symmetric key encryption
- Asymmetric key encryption

❷ **Symmetric key encryption**

- The **Data Encryption Standard (DES)** is a Symmetric key data encryption method.
- **Same key** is used for both encryption and decryption.
- Speed of encryption or decryption is **very fast**.
- Plain text and cipher text are of **same size.**
- Algorithms like **DES, AES,RC4** uses symmetric key encryption.
- Provides **confidentiality**.

❸ **Asymmetric key encryption**

- The **Rivest Shamir Adleman (RSA)** is a Asymmetric key encryption method.
- **Different keys** are used for encryption and decryption.
- Speed of encryption or decryption is **slow**.
- The size of cipher text is always **greater than plain text**.
- Algorithms like **RSA,ECC,DSA** use asymmetric key encryption.
- Provides **confidentiality, authenticity and non-repudiation**.

**4. Define Secure Electronic Transaction (SET) and its features.**

- **S**ecure **E**lectronic **T**ransaction is a **security protocol** for **electronic payments** with **credit cards**, in particular via the **Internet**.
- **SET** was developed in **1996** by **VISA** and **Master Card,** with the participation of **GTE, IBM, Microsoft and Netscape**.
- **SET** is based on the used of **digital signatures** and the encryption of transmitted data with **asymmetric and symmetric encryption algorithms**.

**Features**

- Using **public key** encryption and **private key** encryption **ensure** data **confidentiality.**
- Use information **digest technology** to ensure the integrity of information.
- **Dual signature technology** to ensure the **identity** of **both parties** in the **transaction.**

**5. Briefly Explain Secure Sockets Layers (SSL).**

- The most common **Cryptographic protocol** is **S**ecure **S**ockets **L**ayers.
- **SSL** is a **hybrid encryption protocol** for **securing transactions** over the Internet.
- User using an **internet browser** to connect to an **SSL secured E-Commerce site**.
- **Today**, all **browsers** in the market **support SSL**, and most of the

  **Secure Communications.**
- The **URL** starts **with https://** instead of **http://** where the **"s"** obviously means **Secured.**

# 18. ELECTRONIC DATA INTERRCHANGE -EDI

**2 Mark**

**1.Define EDI.**

The **E**lectronic **D**ata **I**nterchange is the exchange of **business documents** between **one trade partner** and **another electronically.**

**2. List few types of business documents.**

- Delivery notes
- Invoices
- Purchase orders
- Advance ship notice
- Functional acknowledgements

**3. What are the 4 major components of EDI?**

- Standard document format
- Translator and Mapper
- Communication software
- Communication network

**4. What is meant by directories EDIFACT?**

The versions of **EDIFACT** are also called as **directories**. These **EDIFACT directories** will be revised **twice a year**.

**5. Write a note on EDIFACT subsets.**

Due to the **complexity,** branch-specific subsets of **EDIFACT** have **developed.**

**Example:**

**CEFIC** – Chemical industry

**EDIFURN** – Furniture industry

**EDIGAS** – gas business

**3 Mark**

**1.Write a short note on EDI.**

The **E**lectronic **D**ata **I**nterchange is the exchange of business documents between **one trade partner** and **another electronically**. ***Delivery notes, invoices, purchase orders, advance ship notice, functional acknowledgements etc***.

**2. List the various layers of EDI.**

- Semantic layer
- Standards translation layer
- Transport layer
- Physical layer

**3. Write a note on UN/EDIFACT.**

**U**nited **N**ations/**E**lectronic **D**ata **I**nterchange **F**or **A**dministration, **C**ommerce and **T**ransport **(UN/EDIFACT)** is **an International EDI** – standard developed under the **supervision** of the **U**nited **N**ations.

**4. Write a note on EDIFACT message.**

The basic standardization concept of **EDIFACT** is that there are **uniform message types** called **U**nited **N**ations **S**tandard **M**essage **(UNSM). Six uppercase English alphabets**. The message **begins with UNH** and **ends with UNT.**

**5. Write about EDIFACT separators.**

| Character | Uses |
|---|---|
| **Apostrophe ‘** | Segment terminator |
| **Plus sign +** | Segment tag and data element separator |
| **Color :** | Component data element separator |
| **Question mark ?** | Release character |
| **Period .** | Decimal point |

**5 Mark**

**1. Briefly explain various types of EDI.**

- **Direct EDI/Point-to-Point**

It is also called as **Point-to-Point EDI**. It establishes a **direct connection** between various **business stakeholders and partners** individually.

- **EDI via VAN**

EDI via **VAN** (**V**alue **A**dded **N**etwork) is where **EDI documents** are **transferred** with the support of **third party network service providers**.

- **EDI via FTP/VPN, SFTP,FTPS**

When **protocols** like **FTP/VPN, SFTP and FTPS** are used for **exchange of EDI based documents** through the **I**nternet or **I**ntranet.

- **Web EDI**

**Web based EDI** conducts EDI using and **web browser via the Internet**. To use any **browser** to **transfer data** to their **business partners**. Web based EDI is **easy** and **convenient** for **small** and **medium** organizations.

- **Mobile EDI**

**Smart phones** or other such handheld devices are used to **transfer EDI documents** it is called as **mobile EDI**. Mobile EDI **applications** considerably **increase the speed of EDI transactions.**

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**2. What are the advantages of EDI?**

- ☑ Improving service to end users
- ☑ Increasing productivity
- ☑ Minimizing errors
- ☑ Slashing response times
- ☑ Automation of operations
- ☑ Cutting costs
- ☑ Integrating all business and trading partners
- ☑ Providing information on process status
- ☑ Optimizing financial ratios

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**3. Write about structure of EDIFACT.**

**EDIFACT** is a **hierarchical structure** where the **top level** is referred to as an **interchange**, and **lower levels** contain **multiple messages**. The message consist of **segments**. The **final** iteration is a **data element**.

➘ **Segment Tables**

Segment table lists the **message tags**. **Ex**: **C10** indicates repetitions of a **segment** or **group** between **0 and 10.**

➘ **EDI Interchange**

- **Interchange** is also called as **envelope**.
- The **top level of EDIFACT** structure is **Interchange**.
- **Interchange** may contain **multiple messages**. It **starts with UNB** and **ends with UNZ**.

➘ **EDIFACT Message**

The basic standardization concept of **EDIFACT** is the there are **uniform message types** called **U**nited **N**ations **S**tandard **M**essage **(UNSM).** The message **begins with UNH** and **ends with UNT.**

➘ **EDIFACT Segments**

It is the **subset of message**. A segment is a **three-character alphanumeric code**. Segments may contain **one or several** related **user data elements**.

➘ **EDIFACT Elements**

The elements are the **piece of actual data**. These data elements may be either **simple or composite.**