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# MINIMUM MATERIALS

# FOR

# XII- COMPUTER APPLICATION


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# 1. MULTIMEDIA AND DESKTOP PUBLISHING

## Section – A

**Choose the best answer** **(1 Mark)**

1. _____ refers to any type of application that involves more than one type of media such as text, graphics video animation and sound.

a) an executable file b) desktop publishing **c) multimedia** d) hypertext

**2.** One of the disadvantages of the multimedia is its __

**a) cost** b) adaptability c) usability d) relativity

**3.** Expand JPEG

a) joint photo experts gross **b) joint photographic experts group**

c) joint processor experts group d) joint photographic expression group

**4.** You need hardware, software and __to make multimedia

a) network **b) compact disk drive** c) good idea d) programming knowledge

**5.** Match the following by choosing the right one

1. Text – TGA
2. Image – MIDI
3. Sound – MPEG
4. Video – RTF

a. 1, 2, 3, 4 b. 2, 3, 4, 1 **c. 4, 1, 2, 3** d. 3, 4, 1, 2

**6.** Find the odd one on the following which is not an image format

a) TIFF b) BMP **c) RTF** d) JPEG

**7.** ___ is the process displaying still images they give continuous movement

a) Text formats b) Sound c) MP3 **d) Animation**

**8.** The live telecasting of real time program through Internet is known as ____

**a) web casting** b) web hosting c) data manipulation d) none of the above

**9.** GIF use _____ color look up table

**a) 8 bit** b) 8 KB c) 8 MB d) 8 GB

**10.** RTF file format was introduced by_____

a) TCS **b) Microsoft** c) Apple d) IBM

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define Multimedia and their features**.

- Multimedia is an integration of **many types of media** like **text, graphics, images, audio, animation, video** etc on a single medium in the same information unit.

**2. List out Multimedia Components**

Multimedia has five major components like text, images, sound, video and animation.

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

**1) Static Text**

- Static text, the text or the words will **remain static**.

**2) Hypertext**

- Hypertext is text which contains **links to other texts**.

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

**1)Raster or Bitmap Images**

- The common and comprehensive form of storing images in a computer is raster or bitmap image.

**2) Vector Images**

- Drawing elements or objects such as lines, rectangles, circles and so on to create an image are based on Vector images.

**5. Define Animation and their features**

- Animation is the process displaying still images so quickly so that they give the impression of continuous movement.
- Animations may be in two or three dimensional.

**6. List out image file formats**

1. TIFF (Tagged Image File Format)
2. BMP (Bitmap)
3. DIB (Device Independent Bitmap)
4. GIF (Graphics Interchange Format)
5. JPEG (Joint Photographic Experts Group)
6. TGA (Tagra)
7. 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. 3GP
5. FLV (Flash Video)

**9. Define Multimedia Production.**

- The production phase starts after the pre-production activities in the multimedia application.
- This phase includes the activities like background music selection, sound recording and so on.

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

- Script writer
- Production manager
- Editor
- Graphics Architect
- Multimedia Architect
- Programmer
- Web Master.

## Section-C

**Answer the following questions** **(3 Marks)**

**1. Briefly explain about Multimedia Components.**

**MULTIMEDIA COMPONENTS:**

**1) Text**

- Text the basic components of multimedia used for communication.

**2) Image**

- Images acts as an vital component in multimedia.

**3) Animation**

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

**4) Sound**

- Sound is a meaningful speech in any language and providing the pleasure of music, special effects and so on.

**5) Video**

- Video is defined as the display of recorded event, scene etc.

**2. Describe the features and 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** is 16 frames per second.
- Natural looking should be at least 25 frames per second.
- Animations may be in **two or three dimensional**.
- The two basic **types of animations** are Path animation and Frame animations

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

**1. Production Manager**

- The role of production manager is to define, and coordinate, the production of the multimedia project.

**2. Content Specialist**

- Content specialist performs all research activities concerned with the proposed application's content.

**3. Script Writer**

- The script writer visualizes the concepts in three dimensional environments

**4. Text Editor**

- The Text Editor checks the flow of text, structure and correct it grammatically.

**5. Multimedia Architect**

- The multimedia architect integrates all the multimedia building blocks using an authoring tools.

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

**1. Text File Formats**

- RTF(Rich Text Format)
- Plain text

**2. Image File Formats**

- TIFF (Tagged Image File Format)
- BMP (Bitmap)
- DIB (Device Independent Bitmap)
- GIF (Graphics Interchange Format)
- JPEG (Joint Photographic Experts Group)
- TGA (Tagra)
- PNG (Portable Network Graphics)

**3. Digital Audio File Formats**

- WAV (Waveform Audio File Format)
- MP3 (MPEG Layer-3 Format)
- OGG
- AIFF (Audio Interchange File Format)
- WMA (Windows Media Audio)
- RA (Real Audio Format)

**4. Digital Video File Formats**

- AVI (Audio/Video Interleave)
- WMV (Windows Media Video)
- FLV (Flash Video)
- 3GP
- MPEG (Moving Picture Experts Group)

**5. Explain animation industry and their scope**

- The Indian animation industry has grown to a multibillion net worth standard.
- There are hundreds and thousands of job opportunities lying around open for animators.
- Work opportunities for quality animators and related professionals exist in the following sectors :-
  - Advertising
  - Online and Print News Media
  - Film & Television
  - Cartoon production
  - Theater
  - Video Gaming
  - E-learning

## Section - D

**Answer the following questions:** **(5 Marks)**

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

The phases for development of complex multimedia projects are,

**1. Conceptual Analysis and Planning:**

- Conceptual analysis identifies a appropriate theme, budget, content availability and Copyright issues.

**2. Project design:**

- Once the theme is finalized objectives, goals, and activities are drawn for the multimedia project.
- Activities are series of actions which contribute to the Project design phase.

**3. Pre-production:**

Based on the planning and design the project is developed.

**STEPS IN PRE-PRODUCTION:**

- **Budgeting**
- **Multimedia Production Team**
- **Hardware Selection**
- **Software Selection and File Formats**
- **Defining the Content**
- **Preparing the structure**

**4. Production:**

- The production phase starts after the pre-production activities in the multimedia application.
- This phase includes the activities like background music selection, sound recording and so on.
- A pilot project is ready by this time.

**5. Testing:**

- The complete testing of the pilot product is done before the mass production to ensure that everything is right, and avoiding the failure after launch.

**6. Documentation:**

- The documentation is a mandatory and has all the valuable information's starting from the system requirement till the completion of testing.

7. **Delivering the Multimedia Product:** Are best delivered on CD/DVD or in the website.

**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.
- Using numerical transformations the movement of that image along its paths is calculated for their defining coordinates.
- The least frame rate of at least 16 frames per second gives the impression of smoothness.
- Natural looking should be at least 25 frames per second.
- Animation tools are very powerful and effective.
- Animations may be in two or three dimensional.
  - Two dimensional animation , occurs on the flat X and Y axis of the screen.
  - Three dimensional animation occurs along the three axis X, Y and Z.
- The two basic types of animations are,
  - Path animation involves moving an object on a screen that has a constant background.
  - In frame animations, multiple objects are allowed to travel simultaneously and the background or the objects also changes.

**3. Explore the opportunities in Animation filed movie industry.**

- In the past, animation course holders could find job opportunities only in the film industry.
- In India the animation and visual effects industry, has been growing stronger in recent years.
- This is because they have become part of the media and entertainment industry.
- Animation and visual effects requirements for massive international projects was outsourced to Indian companies in Mumbai and Pune.
- The surge in demand for animation and visual effects experts has led to a significant increase in the number of students enrolling for a VFX course.
- A number of job opportunities are opening up on a daily for animation and visual effects professionals

**4. Explain in detail about production team Roles and Responsibilities**

**1. Production Manager**

- The role of production manager is to define, and coordinate, the production of the multimedia project.

**2. Content Specialist**

- Content specialist performs all research activities concerned with the proposed application's content.

**3. Script Writer**

- The script writer visualizes the concepts in three dimensional environments

**4. Text Editor**

- The Text Editor checks the flow of text, structure and correct it grammatically.

**5. Multimedia Architect**

- The multimedia architect integrates all the multimedia building blocks using an authoring tools.

**6. Computer Graphic Artist**

- Computer Graphic Artist deals with the graphic elements of the programs like backgrounds, animation, logos etc.

**7. Audio and Video Specialist**

- They are responsible for recording, editing sound effects and digitizing.

**8. Computer Programmer**

- The computer programmer writes the lines of code or scripts in the appropriate language.

**9. Web Master**

- The responsibility of the web master is to create and maintain an Internet web page.
- They converts a multimedia presentation into a web page.
- Final multimedia product is ready for consultation is a joint effort of the entire team.

**5. Explain about different file formats in multimedia files.**

**1. Text File Formats**

- RTF: Rich Text Format is the primary file format introduced in 1987 by Microsoft.
- Plain text: The files can be opened, read, and edited with most text editors.

**2. Image File Formats**

- **TIFF (Tagged Image File Format)**
  - This format is comfortable for moving large files between computers and also allows image compression
- **BMP (Bitmap)**
  - It is used for the **high-resolution or large images**.
- **DIB (Device Independent Bitmap)**
  - Allows the files to be displayed on a variety of devices.
- **GIF (Graphics Interchange Format)**
  - GIF is a compressed image format and suitable for graphics that uses only limited colors
- **JPEG (Joint Photographic Experts Group)**
  - JPEG was designed to attain maximum image compression and uses lossy compression technique.

**3. Digital Audio File Formats**

- **AIFF (Audio Interchange File Format)**
  - A standard audio file format used by Apple.
- **WAV (Waveform Audio File Format)**
  - It is a audio file format in windows for storing uncompressed sound files.
- **MP3 (MPEG Layer-3 Format)**
  - It is a format for storing and downloading music.
- **WMA (Windows Media Audio)**
  - It is a windows media audio format by Microsoft and designed with Digital Right Management (DRM) abilities for copyright protection.
- **RA (Real Audio Format)**
  - Real Audio format is designed for streaming audio over the Internet.

**4. Digital Video File Formats**

- **AVI (Audio/Video Interleave)**
  - Sound and picture elements are stored in alternate interleaved chunks in the file.
- **MPEG (Moving Picture Experts Group)**
  - MPEG is the standards for digital video and audio compression.

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# 2. AN INTRODUCTION TO ADOBE PAGEMAKER

## Section – A

**Choose the best answer** **(1 Mark)**

**1.** DTP stands for _____

**(a) Desktop Publishing** (b) Desktop Publication (c) Doctor To Patient (d) Desktop Printer

**2.** _____ is a DTP software.

(a) Lotus 1-2-3 **(b) PageMaker** (c) Maya (d) Flash

**3.** Which menu contains the New option?

**(a) File menu** (b) Edit menu (c) Layout menu (d) Type menu

**4.** In PageMaker Window, the area outside of the dark border is referred to as _____.

(a) page **(b) pasteboard** (c) blackboard (d) dashboard

**5.** Shortcut to close a document in PageMaker is _____

(a) Ctrl + A (b) Ctrl + B (c) Ctrl + C **(d) Ctrl + W**

**6.** A _____ tool is used for magnifying the particular portion of the area.

(a) Text tool (b) Line tool **(c) Zoom tool** (d) Hand tool

**7.** _____ tool is used for drawing boxes.

(a) Line (b) Ellipse **(c) Rectangle** (d) Text

**8.** Place option is present in_____ menu.

**(a) File** (b) Edit (c) Layout (d) Window

**9.** To select an entire document using the keyboard, press _____

**(a) Ctrl + A** (b) Ctrl + B (c) Ctrl + C (d) Ctrl + D

**10.** Character formatting consists of which of the following text properties?

(a) Bold (b) Italic (c) Underline **(d) All of these**

**11.** Which tool lets you edit text?

**(a) Text tool** (b) Type tool (c) Crop tool (d) Hand tool

**12.** Shortcut to print a document in Pagemaker is _____

(a) Ctrl + A **(b) Ctrl + P** (c) Ctrl + C (d) Ctrl + V

**13.** Adobe PageMaker is a **page layout** software.

**14.** **Title Bar** is the topmost part of the PageMaker window.

**15.** **Scrolling** is the process of moving up and down or left and right through the document window.

**16.** **Ellipse** tool is used to draw a circle.

**17.** The Insert pages option is available on clicking the **Layout** menu.

**18. Match the following.**

| | | | |
|---|---|---|---|
| Cut | - | (i) Ctrl + Z | → Ctrl + X |
| Copy | - | (ii) Ctrl + V | → Ctrl + C |
| Paste | - | (iii) Ctrl + X | → Ctrl + V |
| Undo | - | (v) Ctrl + C | → Ctrl + Z |

**19. Choose the odd man out.**

**i.** Adobe PageMaker, QuarkXPress, Adobe In Design, **Audacity**

**ii.** File, Edit, Layout, Type, **Zip**

**iii.** Pointer Tool, Line tool, **Hide Tool**, Hand Tool

**iv.** Bold, Italic, **Portrait**, Underline

**20. Choose the correct statement.**

**i.** (a) Text can be selected using mouse only.

**(b) Text can be selected using mouse or the keyboard.**

**ii.** **(a) DTP is an abbreviation for Desktop publishing.**

(b) DTP is an abbreviation for Desktop publication.

**21. Choose the correct pair**

(a) Edit and Cut (b) Edit and New (c) Undo and Copy **(d) Undo and Redo**

## Section-B

**Answer the following questions** **(2 Marks)**

**1. What is desktop publishing?**

- Desktop publishing (abbreviated DTP) is the creation of page layouts for documents using DTP Software.

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

- Popular DTP software are Adobe PageMaker, Adobe InDesign, QuarkXPress, etc.

**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?**

To create a new document,

I. Choose File > New in the menu bar. (or) Press Ctrl + N in the keyboard.
II. Now Document Setup dialog box appears, Enter the appropriate settings.
III. Click on OK. Now a new document called Untitled - 1 opens on the screen.

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

- A document page is displayed within a dark border.
- The area outside of the dark border is referred to as the pasteboard.
- Pasteboard is used to temporarily hold elements and not visible when you print the document.

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

- Menu Bar contains the following menus,
  - File, Edit, Layout, Type, Element, Utilities, View, Window, Help.
- When you click on a menu item, a pulldown menu appears with sub-menus under certain options .

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

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

**8. What is text editing?**

- Text Editing is the process of inserting and deleting words, correcting errors, moving and copying text in the document.

**9. What is text block?**

- **PageMaker uses Text tool** to create text blocks to type the text directly into it and the borders are invisible.

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

- Text blocks that are connected to other text block in the way are called threaded.
- The process of connecting text among Text blocks is called threading text.

**11. What is threading text?**

- Text blocks that are connected are said to be threaded.
- The process of connecting text among Text blocks is called threading text.

**12. How do you insert a page in PageMaker?**

**<u>To insert pages</u>**

**1.** Go to the page where you want to insert.
**2.** Choose Layout > Insert Pages in the menu bar.
**3.** Type the number of pages you want to insert in the dialog box appears.
**4.** To insert pages after the current page, choose ‘after’ from the pop-up menu.
**5.** Click on Insert.
**6.** The new pages are inserted.

## Section-C

**Answer the following questions** **(3 Marks)**

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

- Adobe PageMaker is **a page layout software**.
- It is used to design and produce documents that can be printed.
- Tools allow you to easily position text and graphics on document pages.

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

| S. No. | Tools | Keyboard Short Cut |
|---|---|---|
| 1 | Pointer Tool | F9 |
| 2 | Rotating Tool | Shift + F2 |
| 3 | Line Tool | Shift + F3 |

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

| Tool | Toolbox | Cursor | 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. |

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

**Rejoining Split Blocks:**

To rejoin the two text blocks,

**1.** Place the cursor on the bottom handle of the second text block, click and drag the bottom handle up to the top.

**2.** Then place the cursor on the bottom handle of the first text block, and click and drag the bottom handle down if necessary.

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

- To link Frames containing text,
  1. Draw a **second frame** with the Frame tool of your choice.
  2. Click the **first frame** to select it.
  3. Click on the **red triangle** to load the text icon.
  4. Click the **second frame**.
  5. PageMaker flows the text into the second frame.

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

- Any text or object that you place on the master page will appear on the entire document pages.
- Master Pages commonly contain repeating logos, page numbers, headers, and footers.
- Master items cannot be selected on a document page.

**7. How do you insert page numbers in Master pages?**

1. Click on Master Pages icon and click on Text Tool.
2. Now the cursor changes to I - beam.
3. Click on the left Master page to add page number.
4. Press Ctrl + Alt + P.
5. The page number displays as 'LM' on the left master page.
6. Click on the right Master page to add page number.
7. Press Ctrl + Alt + P.
8. The page number displays as 'RM' on the right master page, but will appear correctly on the actual pages.

## Section - D

**Answer the following questions:** **(5 Marks)**

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

| Tool | Toolbox | 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 trim 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 (an alternative to the scroll bar) |
| Zoom tool |  | Used to magnify or reduce an area of the page. |

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

To place 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 (Rectangle frame tool or Ellipse Frame Tool or Polygon frame Tool). Make sure the object remains selected.
3. Click on File. The File menu will appear.
4. Click on Place. The Place dialog box will appear.
5. Locate the document that contains the text you want to place, select it.
6. Click on Open.
7. Click in a frame to place the text in it. The text will be placed in the frame.

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

- After created text in a text block, if you want to convert it to a frame.
- You can do this by using these steps.

**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.

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

**Drawing a Star using Polygon tool**

- To draw a Star

1. Click on the Polygon tool from the toolbox. The cursor changes to a crosshair.
2. Click and drag anywhere on the screen. As you drag, a Polygon appears.
3. Release the mouse button when the Polygon is of the desired size.
4. Choose Element > Polygon Settings in the menu bar. Now Polygon Settings dialogue box appears.
5. Type 5 in the Number of sides text box.
6. Type 50% in Star inset textbox.
7. Click OK. Now the required star appears on the screen.

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# 3. INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

## Section – A

**Choose the best answer** **(1 Marks)**

**1.** Which language is used to request information from a Database?

a) Relational b) Structural **c) Query** d) Compiler

**2.** The ---------- diagram gives a logical structure of the database graphically?

**a) Entity-Relationship** b) Entity c) Architectural Representation d) Database

**3.** An entity set that does not have enough attributes to form primary key is known as

a) Strong entity set **b) Weak entity set** c) Identity set d) Owner set

**4.** ---------- Command is used to delete a database.

a) Delete database database_name b) Delete database_name

**c) drop database database_name** d) drop database_name

**5.** Which type of below DBMS isMySQL?

a) Object Oriented b) Hierarchical **c) Relational** d) Network

**6.** MySQL is freely available and is open source.

**a) True** b) False

**7.** ---------- represents a “tuple” in a relational database?

a) Table **b) Row** c) Column d) Object

**8.** Communication is established with MySQL using

**a) SQL** b) Network calls c) Java d) API’s

**9.** Which is the MySQL instance responsible for data processing?

a) MySQL Client **b) MySQL Server** c) SQL d)Server Daemon Program

**10.** The structure representing the organizational view of entire database is known as -------- in MySQL database.

**a) Schema** b) View c) Instance d) Table

## Section-B

**Answer the following questions** **(2 Marks)**

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

- A data model that determines the logical structure of a database and fundamentally determines in which manner data can be stored, organized and manipulated.

**Types of Data Model:**

- Hierarchical Database Model
- Network model
- Relational model
- Object-oriented database model

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

- **Data Duplication** –Multiple copies of same data wasting the spaces.
- **High Maintenance** – Access control and verifying data consistency needs high maintenance cost.
- **Security** – Less security provided to the data.

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

- **Single Valued Attributes:**
  - A single valued attribute contains only one value for the attribute and they don't have multiple numbers of values.
  - **Example:** Age
- **Multi Valued Attributes:**
  - A multi valued attribute has more than one value for that particular attribute.
  - **Example:** Degree

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

**Data Definition Language (DDL)**

| Commands | Description | Syntax |
|---|---|---|
| **CREATE** | Used to create database or tables | CREATE database databasename; |
| **DROP** | Deletes a database or table. | DROP database databasename; |

**Data Manipulation Language (DML)**

| Commands | Description | Syntax |
|---|---|---|
| **INSERT** | Adds new rows into database table. | INSERT INTO tablename VALUES (value1, value2); |
| **DELETE** | Deletes the records from the table. | DELETE from tablename WHERE columnname=”value”; |

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

ACID Properties – The acronym stands for Atomicity, Consistency, Isolation and Durability.

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

- The TCL(Transaction Control Language) command "COMMIT" helps the database to save data permanently.

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

- A VIEW in SQL is a logical subset of data from one or more tables.
- View is used to restrict data access.

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

| SQL | MySQL |
|---|---|
| ▪ SQL – Structured Query Language is not a database. | ▪ MySQL is a database management system |
| ▪ Used to access the database | ▪ Allows managing relational databases |

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

- In Entity Relationship Model, relationship exists between two entities.
- Three types of relationships are,
  1. One-to-One relationship
  2. One-to-Many relationship
  3. Many-to-Many relationship

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

- The features of RDBMS are
  - High Availability
  - High Performance
  - Robust Transactions and support
  - Ease of management
  - Less cost

## Section-C

**Answer the following questions** **(3 Marks)**

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

- The concept of storing the data started before 40 years in various formats.
- Punched card technology was used to store the data.
- The file systems such as indexed, random and sequential access were predecessor of database system.
- DBMS was introduced to overcome limitations of the file system.

**2. What is relationship in databases? List its types.**

- In Entity Relationship Model, relationship exists between two entities.
- Three types of relationships are,
  - One-to-One relationship
  - One-to-Many relationship
  - Many-to-Many relationship

**3. Discuss on Cardinality in DBMS.**

- Cardinality is a number of entities in one set mapped with the number of entities of another set via the relationship.
- Three classifications in Cardinality are one-to-one, one-to-many and Many-to-Many.


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

**List of privileges available in MySQL**

| | |
|---|---|
| **Select_priv** | User can select rows from database tables. |
| **Insert_priv** | User can insert rows into database tables. |
| **Update_priv** | User can update rows of database tables. |
| **Delete_priv** | User can delete rows of database tables. |
| **Create_priv** | User can create new tables in database. |

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

- Administrative MySQL Commands:
  1. **USE Database** – This command is used to select the database in MySQL

```
mysql > use test;
Database changed
```

  2. **SHOW Databases –** Lists all the databases available in the database server.

```
mysql > show databases;
```

  3. **SHOW Tables –** Lists all the tables available in the current database we are working in.

```
mysql > show tables;
```

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## Section - D

**Answer the following questions:** **(5 Marks)**

**1. Discuss on various database models available in DBMS.**

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

**Types of Data Model:**

- Hierarchical Database Model
- Network model
- Relational model
- Object-oriented database model

**i) Hierarchical Database Model**

- It is **IBM's** first DBMS.
- Each record has information in **parent/ child relationship like a tree structure**.
- The collection of records was called as **Record Types / Tables.**
- The individual **records are equal to rows**.

**ii) Network model**

- In Network model each member can have more than one owner.
- The many to many relationships are handled in a better way.
- This model identified the three database components such as,
- **Network schema:** Schema defines all about the structure of the database.
- **Sub schema:** Controls on views of the database for the user
- **Language for data management:** Basic procedural for accessing the database.

**iii) Relational Model**

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

**iv) Object-Oriented Database Model**

- This model is the combination of **OOP's concepts and database technologies** and also serves as the base of Relational model.

- Object oriented model uses small, reusable software known as **Objects.**
- These are stored in object oriented database.

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

- ER model consists of a collection of entities where each of these entities will be interconnected with each other with conditions and dependencies.

**ER Modeling Basic Concepts**

The basic concepts of ER model consists of

**1.** Entity or Entity type

**2.** Attributes

**3.** Relationship

**Entity or Entity type**

❖ An Entity can be anything a real-world object or animation which is easily identifiable by anyone even by a common man.

❖ An entity is represented by a rectangular box.

**Example:** Employee, HR, Manager are entities


**Types of Entity:**

➢ **Strong Entity:**

- A Strong entity **doesn't depend on any other entity** on the database with a primary key
- It is represented by one rectangle.

➢ **Weak Entity:**

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

➢ **Entity Instance:**

- Instances are the **values** for the entity
- Entity Instance denotes the category values for the given entity.
- **Example:** Animals entity has instances like dog, cat, cow… Etc

**Attributes**

- An attribute is the information about that entity and it will describe, quantify, qualify, classify, and specify an entity.

**Types of attributes:**

**1.** Key Attribute - Unique characteristic of an entity.

**2.** Simple Attributes - Cannot be separated

**3.** Composite Attributes - Can be subdivided into simple attributes

**4.** Single Valued Attribute - Contains only one value

**5.** Multi Valued Attribute - Has more than one value

**Relationship:**

- In Entity Relationship Model, relationship exists between two entities.
- Three types of relationships are,
    - One-to-One relationship
    - One-to-Many relationship
    - Many-to-Many relationship

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

**Attributes**

- An attribute is the information about that entity and it will describe, quantify, qualify, classify, and specify an entity.
- An attribute will always have a single value, that value can be a number or character or string.

**Types of attributes:**

**1. Key Attribute**

- A key attribute describes a unique characteristic of an entity.

**2. Simple Attribute**

- The simple attributes cannot be separated it will be having a single value for their entity.

**3. Composite Attributes**

- The composite attributes can be subdivided into simple attributes without change in the meaning of that attribute.

**4. Single Valued Attributes:**

- A single valued attribute contains only one value for the attribute and they don't have multiple numbers of values.

**5. Multi Valued Attributes:**

- A multi valued attribute has more than one value for that particular attribute.

**4. Write a note on open source software tools available in MySQL Administration.**

**MYSQL Administration open source software tools**

- Many open source tools are available in the market to design the database in a better and efficient manner.
- PhpMyAdmin is most popular for Web Administration.
- The popular Desktop Application tools are MySQL Workbench and HeidiSQL.

**PHPMYADMIN (Web Admin)**

- This administrative tool of MySQL is a web application written in PHP.
- They are used predominantly in web hosting.
- The main feature is providing web interface, importing data from CSV and exporting data to various formats.
- It generates live charts for monitoring MySQL server activities like connections, processes and memory usage.
- It also helps in making the complex queries easier.

**MySQL Workbench (Desktop Application)**

- It is a database tool used by developers and DBA's mainly for visualization.
- This tool helps in data modeling, development of SQL, server configuration and backup for MySQL in a better way.
- Its basic release version is 5.0 and is now in 8.0 supporting all Operating Systems.
- The SQL editor of this tool is very flexible and comfortable in dealing multiple results set.

**HeidiSQL (Desktop Application)**

- This tools helps in the administration of better database systems.
- It supports GUI (Graphical User Interface) features for monitoring server host, server connection, Databases, Tables, Views, Triggers and Events.

**5. Explain in detail on Sub Queries with suitable examples.**

- The SQL query is written within a main Query is called as Nested Inner/ SubQuery.
- The sub query is executed first and the results of sub query are used as the condition for main query.
- **The sub query must follow the below rules:**
  - Sub Queries are always written within the parentheses.

- Always place the Subquery on the right side of the comparison operator.
- ORDER BY clause is not used in sub query, since Subqueries cannot manipulate the results internally.
- Consider the **Employee** table with the fields EmpID, Name, Age and Salary.

**Table: 3.29 Select Order by class Record List**

| EmpID | Name | Age | Salary |
|---|---|---|---|
| 101 | Ram | 35 | 15000 |
| 102 | Gopal | 41 | 30000 |
| 103 | Priya | 32 | 13000 |
| 104 | Hari | 37 | 20000 |

- Using Select statement the sub query is,

**SELECT * from Employee where EmpID IN (SELECT EmpID from Employee WHERE Salary < 20000);**

- First, the inner query is executed.
- As a result EmpID 101 and 103 are retrieved.
- Now the external or outer query is executed.
- Internally the query is ,

**SELECT * from Employee where EmpID IN(101,103)**

- And the output is,

**Table: 3.30 Select Record List**

| EmpID | Name | Age | Salary |
|---|---|---|---|
| 101 | Ram | 35 | 15000 |
| 103 | Priya | 32 | 13000 |

- Similarly the subqueries are used with INSERT, UPDATE and DELETE.

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# COMPUTER APPLICATION

## 4. INTRODUCTION TO HYPERTEXT PRE-PROCESSOR

### Section – A

**Choose the best answer** **(1 Mark)**

1. What does PHP stand for?
   **a) Personal Home Page** **b) Hypertext Preprocessor**
   c) Pretext Hypertext Processor d) Pre-processor Home Page
2. What does PHP files have a default file extension?
   a) .html b) .xml **c) .php** d) .ph
3. A PHP script should start with ___and end with ___:
   a) <php> b) < ? php ?> **c) < ? ?>** **d) <?php ? >**
4. Which of the following must be installed on your computer so as to run PHP script?
   a) Adobe b) windows **c) Apache** d) IIS
5. We can use ___ to comment a single line?
   i) /? ii) // iii) # iv) /* */
   a) Only (ii) b) (i), (iii) and (iv) **c) (ii), (iii) and (iv)** d) Both (ii) and (iii)
6. Which of the following PHP statement/statements will store 41 in variable num?
   i) $x=41; ii) $x='41'; iii) $x="41";
   a) Both (i) and (ii) b) All of the mentioned. c) Only (iii) **d) Only (i)**
7. What will be the output of the following PHP code?

```
<?php
$num = 1;
$num1 = 2;
print $num . "+". $num1 ;
?>
```

   a) 3 **b) 1+2** c) 1.+.2 d) Error
8. Which of the following PHP statements will output Hello World on the screen?
   **a) echo ("Hello World");** **b) print ("Hello World");**
   c) printf ("Hello World"); d) sprintf ("Hello World");
9. Which statement will output $x on the screen?
   **a) echo "\$x";** b) echo "$$x"; c) echo "/$x"; d) echo "$x;
10. Which of the below symbols is a newline character?
    a) \r **b) \n** c)/n d)/r

## Section-B

**Answer the following questions** **(2 Marks)**

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

- It is very simple and lightweight open source server side scripting language.
- It can easily embed with HTML and other client side scripting languages.
- It also creates dynamic and interactive Webpages in the real time projects.

**2. What is Webserver?**

- Webserver is software which is running in server hardware.
- It takes the responsibilities for compilation and execution of server side scripting languages.
- **Example:** Apache Tomcat, Microsoft IIS

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

- Web scripting languages are classified into two types,
  - Client side scripting language
  - Server side scripting language.

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

| CLIENT | SERVER |
|---|---|
| The client is a separate hardware machine which is connected with server in the network. | The server is a high performance hardware machine it could run more than one application concurrently. |
| Client is a service requester | Server is a service provider |
| **Example:**<br>CSS (Cascading Style Sheets) and Java script | **Example:**<br>ASP (Active Server Page) and<br>JSP (Java Server page) |

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

- Google Chrome
- Mozilla Firefox
- Opera
- Safari
- Internet Explorer

**6. What is URL?**

- URL means Uniform Resource Locator.
- It is the address of a resource on the internet.
- It indicates the location of a resource and the protocol used to access it.
- **Example**: https://www.google.com/

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

- Yes, PHP is a case sensitive language both upper and lower case are treated differently.
- **Example:** $x and $X are different variable names.

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

- The variable in PHP begins with a **dollar ($)** symbol.
- The assignment activity implemented using **"="** operator.
- Finally the statement ends with semi colon **";"**, it indicates the end of statement.
- **Example:** $x=5;

**9. Define Client Server Architecture.**

- A server is a computer or a device that provides functionality for other programs or devices, called "clients".
- This architecture is called the client server model.

**10. Define Web server.**

- A Web server is a Software that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users

## Section-C

**Answer the following questions** **(3 Marks)**

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

1. Server-side scripting prevents increasing of the load**.**
2. It creates pages dynamically, based on the user interaction
3. It is necessary to run dynamic pages on browsers.
4. It does not depend on **browser** .
5. Prevents from hacking vulnerabilities.
6. Loading time of the web pages is reduced.
7. Security is ensured for user privacy.

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

- Web server software that runs on server hardware, governs the server side scripting compilation into an intermediate byte-code that is then interpreted by the runtime engine.
- **Example:** Tomcat Apache, Nginx etc.

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

| Server Side Scripting Language | Client Side Scripting Language |
|---|---|
| • Works on the server machine which could not be visible at the client end. | • Works at the client machine and script are visible among the users. |
| • Requires server interaction. | • Does not need server interaction. |
| • Relatively secure | • Insecure |
| • PHP, ASP.net, Ruby,etc | • HTML, CSS, JavaScript,etc |

**4. In how many ways you can embed PHP code in an HTML page?**

- PHP is designed to interact with HTML and PHP scripts.
- PHP can be included in an HTML page without a problem.
- In an HTML page, PHP code is enclosed within special PHP tags in two ways,
  - PHP in HTML using a **PHP script tags** → **<?php ?>**
  - PHP in HTML using **Short_tags** → **<? ?>**

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

- Operator is a symbol which is used to perform mathematical and logical operations in the programing languages.
- Different types of operator in PHP are:
  **1.** Arithmetic operators
  **2.** Assignment operators
  **3.** Comparison operators
  **4.** Increment/Decrement operators
  **5.** Logical operators
  **6.** String operators

## Section - D

**Answer the following questions:** **(5 Marks)**

**1. Explain client side and server side scripting language.**

Web scripting languages are classified into two types, client side and server side scripting language.

**Server Side Scripting Language:**

- PHP (Hypertext Pre-processor) is a Server Side Scripting Language used in a server machine.
- It is very simple and lightweight open source server side scripting language.
- Easily embed with HTML and other client side scripting languages.
- It also creates dynamic and interactive Webpages in the real time projects.
- PHP scripting language can be executed via an interpreter in the Webservers or CGI (Common Gateway Interface).
- The PHP code entirely executes on Webserver and it generates HTML code which is sent to the user.
- PHP also supports OOPs concepts.

**Client Side Scripting Language:**

- Using HTML we can develop a static web pages.
- To develop a interactive pages (Dynamic Web page ) we need a scripting language.
- JavaScript is a Client Side Scripting Language used in a client machine.
- JavaScript programming language is embed into the html.
- User entered data in the Dynamic Web page can be validated before sending it to the server.
- This saves server traffic, which means less load on your server.
- JavaScript includes such items as Textboxes, Buttons, drag-and-drop components and sliders to give a Rich Interface to site visitors.

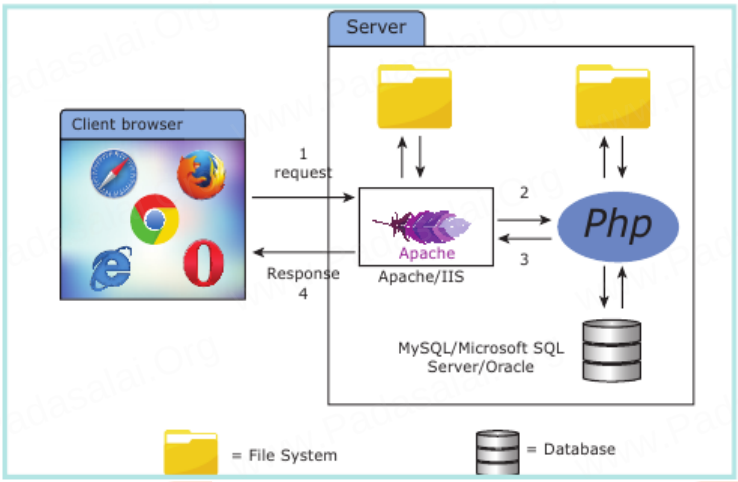
**2. Discuss in detail about Website development activities.**

- The process of Web Development also includes Web content generation, Web page designing, Website security and so on.

**PHP Script used in Web Development:**

- Website or Web page is developed by the programmer using PHP script.
- Finally the entire Website codes are moved to Web server path in a remote server machine.
- From client side, the end user opens a browser, types the URL of the Website or Webpage and initiates the request to remote server machine over the network.

- After receiving the request from client machine the Web server tries to compile and interpret the PHP code which is available in remote machine.
- Next a response will be generated and sent back to the client machine over the network from Webserver.
- Finally the browser which is installed in the client machine receives the response and displays the output to user, as shown in Figure given below.




**3. Explain the process of Webserver installation.**

- Web server software such as Tomcat Apache, Nginx are available as open source or licensed version in the market.

**Steps to install and configure Apache Httpd Webserver and PHP module in windows server machine.**

**Step 1:**

- Go to Apache foundation Website and download the Httpd Webserver Software.

**https://httpd.apache.org/download.cgi**

**Step2:**

- After downloading .
- MSI file from Apache foundation Website, user launches the .MSI file and clicks next and next button to finish the installation on server machine.
- The software takes default port number 130 or 130130.
- Once the user finished, the Web server software is installed and configured on server hardware machine as a service.

**Step 3:**

- To test the installation of Apache Httpd Webserver, enter the following URL from your Web browser which is installed in your client machine.

**https://localhost:130/ or https://localhost:130130**

**The output page that says "Its works"**

**Step 4:**

- Administrator user can start, stop and restart the Web server service at any time via windows Control panel.
- Once the services stops, the client machine will not receive the response message from server machine.

**Step 5:**

- Webserver's configuration setting file "httpd.conf " is located in the **conf** directory under the apache installation directory.
- Edit this file and enable the PHP module to run PHP scripting language.

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

- PHP scripting language supports 13 primitive data types.
- PHP supports the following data types.
  **1.** String
  **2.** Integer
  **3.** Float
  **4.** Boolean
  **5.** Array
  **6.** Object
  **7.** NULL
  **8.** Resource

**1. String:**

- String is a collection of characters within the double or single quotes like "Computer Application" or 'Computer Application'.
- Space is also considered as a character.

**Example:**

$x = “Computer Application!”;

$y = ‘Computer Application’;

**2. Integer:**

- Integer is a data type which contains non decimal numbers.

**Example:**

$x = 5;

3. **Float:**

- Float is a data type which contains decimal numbers.

**Example:**

$x = 19.15;

**4. Boolean:**

- Boolean is a data type which denotes the possible two states, TRUE or FALSE.

**Example:**

$x = true;

5. **Array:**

- Array is a data type which has multiple values in single variable.

**Example:**

$cars = array(“Swift”,”Kwid”,”Alto”);

var_dump($cars);

- **Var_dump:**
  - The var_dump() function is used to dump information about a variable.
  - This function displays structured information such as type and value of the given variable.

7. **Object:**

- PHP object is a data type which contains information about data and function inside the class.

8. **NULL:**

- Null is a special data type which contains a single value: NULL

**Example:**

$x = null;

9. **Resources**

- Resource is a specific variable, it has a reference to an external resource.
- These variables hold specific handlers to handle files and database connections in respective PHP program.

**5. Explain operators in PHP with example.**

- Operator is a symbol which is used to perform mathematical and logical operations in the programing languages.
- Different types of operator in PHP are:
  1. Arithmetic operators,
  2. Assignment operators,
  3. Comparison operators,
  4. Increment/Decrement operators,
  5. Logical operators, and
  6. String operators.

**Arithmetic operators**

- The arithmetic operators in PHP perform general arithmetical operations, such as addition, subtraction, multiplication and division etc.

**Assignment Operators:**

- Assignment operators are performed with numeric values to store a value to a variable.
- The default assignment operator is "=".
- This operator sets the left side operant value of expression to right side variable.

**Comparison Operators:**

- Comparison operators perform an action to compare two values.
- These values may contain integer or string data types (Number or Strings).

**Increment and Decrement Operators:**

- Increment and decrement operators are used to perform the task of increasing or decreasing variable's value.
- This operator is mostly used during iterations in the program logics.

**Logical Operators:**

- Logical Operators are used to combine conditional statements.

**String Operators:**

- Two operators are used to perform string related operations such as Concatenation and Concatenation assignment (Appends).

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# 5. PHP Function and Array

## Section – A

**Choose the best answer** **(1 Mark)**

1. Which one of the following is the right way of defining a function in PHP?

a) function { function body }

b) data type functionName(parameters) { function body }

c) functionName(parameters) { function body }

**d) function functionName(parameters) { function body }**

2. A function in PHP which starts with __ (double underscore) is know as..

**a) Magic Function** b) Inbuilt Function c) Default Function d) User Defined Function

3. PHP's numerically indexed array begin with position _____

a) 1 b) 2 **c) 0** d) -1

4. Which of the following are correct ways of creating an array?

i) state[0] = "Tamilnadu";

ii) $state[] = array("Tamilnadu");

iii) $state[0] = "Tamilnadu";

iv) $state = array("Tamilnadu");

a) iii) and iv) b) ii) and iii) **c) Only iv)** d) ii), iii) and iv)

5. What will be the output of the following PHP code?

```
<?php
$a=array("A","Cat","Dog","A","Dog");
$b=array("A","A","Cat","A","Tiger");
$c=array_combine($a,$b);
print_r(array_count_values($c));
?>
```

**a) Array ( [A] => 5 [Cat] => 2 [Dog] => 2 [Tiger] => 1 )**

b) Array ( [A] => 2 [Cat] => 2 [Dog] => 1 [Tiger] => 1 )

c) Array ( [A] => 6 [Cat] => 1 [Dog] => 2 [Tiger] => 1 )

d) Array ( [A] => 2 [Cat] => 1 [Dog] => 4 [Tiger] => 1 )

6. For finding nonempty elements in array we use

a) is_array ( ) function b) **sizeof ( ) function** c) array_count ( ) function **d) count ( ) function**

7. Indices of arrays can be either strings or numbers and they are denoted as

a) $my_array {4} **b) $my_array [4]** c) $my_array| 4 | d) None of them

8. PHP arrays are also called as

a) **Vector arrays** b) Perl arrays **c) Hashes** d) All of them

9. As compared to associative arrays vector arrays are much

a) Faster **b) Slower** c) Stable d) None of them

10. What functions count elements in an array?

**a) count** **b) Sizeof** c) Array_Count d) Count_array

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define Function in PHP.**

- A function is a reusable block of segment in a program that performs a specific operation or tasks.
- It is a type of sub routine or procedure in a program.

**2. Define User define Function.**

- **User Defined Function (UDF)** in PHP allows user to write own specific operation inside of existing program module.
- **SYNTAX:**
  **function** *functionName*()
  {
  *Custom Logic code to be executed*;
  }

**3. What is parameterized Function.**

- PHP Parameterized functions are the functions with parameters or arguments.
- Required information can be shared between function declaration and function calling part inside the program.

**4. List out System defined Functions.**

- A function is already created by system are called system defined functions.
  - **Example:** round(), sqrt(), date(), sin(), cos()

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

- **SYNTAX:**
  **function** *functionName*()
  {
  *Custom Logic code to be executed*;
  }

**6. Define Array in PHP.**

- An array is a special variable, which can hold more than one value of same data type (homogeneous) in single array variable.
- It's a collection of heterogeneous data.

**7. Write the Usage of Array in PHP.**

- A useful aspect of using arrays in PHP is when combined with the foreach statement.
- This allows you to quickly loop though an array with very little code.

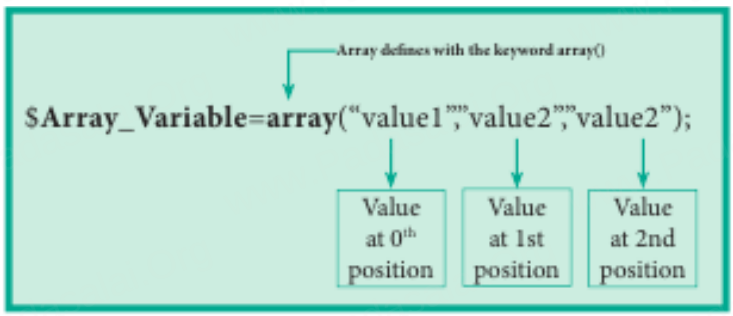
**8. List out the types of array in PHP.**

- Associative Array
- Indexed Arrays
- Multi-Dimensional Array

**9. Define associative array.**

- Associative arrays are arrays that use named keys that you assign to them.
- It helps you to store your data in a collection and assign it a unique key which you may use for referencing your data.

**10. Write array Syntax in PHP.**




## Section-C

**Answer the following questions** **(3 Marks)**

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

- Converting a string of letters to uppercase and lowercase
- Displaying and using the date and time
- Initializing and closing a database connection
- Declaring and using an array
- Handling files
- Accessing data in forms

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

- Required information can be shared between function declaration and function calling part inside the program.
- The parameter is also called as arguments, it is like variables.

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

| System Define Functions | User Define Function |
|---|---|
| A function is already created by system to perform specific task. | User create their own functions based on their needs. |
| They are embedded in language and are provided by compiler | They are provided by user from an external library. |
| Example: round(), sin(), date() | Example: area(), display() |

**4. Write Short notes on Array.**

- An array is a special variable, which can hold more than one value of same data type (homogeneous) in single array variable.
- It's a collection of heterogeneous data.
- The 3 types of array are Associative Array ,Indexed Arrays, and Multi-Dimensional Array.

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

| **Associative array** | **Multidimensional array** |
|---|---|
| Associative arrays are arrays that use named keys that you assign to them. | A multidimensional array is an array containing one or more arrays. |
| It create values in like indexed arrays. | Each array can be either indexed array or associative array. |

**Section - D**

**Answer the following questions:** **(5 Marks)**

**1. Explain Function concepts in PHP.**

- A function is a reusable block of segment in a program that performs a specific operation or tasks.
- A Function will be executed by a call to the Function and the Function returns any data type values or NULL value to called Function.
- The Function can be User defined Function, Built-in Function, and Parameterized Function

**a) User Defined Function:**

- **User Defined Function (UDF)** in PHP allows user to write own specific operation inside of existing program module.
- **SYNTAX:**

```
function functionName()
{
Custom Logic code to be executed;
}
```

- **Function Calling:**
  - A function declaration part will be executed by a call to the function.
  - **SYNTAX:**

    functionName();

**b) System Defined Function:**

- A function is already created by system it is a reusable block of code that performs a specific action.
- Functions can either return values when called or can simply perform an operation without returning any value.
- They are embedded in language and are provided by compiler.
- **Example:**
  - round()
  - sqrt()

**c) Parameterized Defined Function:**

- PHP Parameterized functions are the functions with parameters or arguments.
- Required information can be shared between function declaration and function calling part inside the program.
- The arguments are mentioned after the function name and inside of the parenthesis.
- There is no limit for sending arguments, just separate them with a comma notation.

**2. Discuss in detail about User define Functions.**

**Function:**

- A function is a reusable block of segment in a program that performs a specific operation or tasks.
- It is a type of sub routine or procedure in a program.

**User Defined Function:**

- **User Defined Function (UDF)** in PHP allows user to write own specific operation inside of existing program module.
- A user-defined Function declaration begins with the keyword “function” followed by a user defined function name and any custom logic inside the function block.

- **SYNTAX:**

  **function** *functionName*()
  {
  *Custom Logic code to be executed*;
  }

  - **Function Calling:**
    - A function declaration part will be executed by a call to the function.
    - Programmer has to create Function Calling part inside the respective program.
    - **SYNTAX:**

      functionName();

- **Example:**

```
<?php
function insertMsg()
{
echo “Student Details Inserted Successfully!”;
}
insertMsg();
?>
```

**3. Explain the Multidimensional Array.**

- A multidimensional array is an array containing one or more arrays.
- PHP understands multidimensional arrays that are two, three, four, five, or more levels deep.
- However, arrays more than three levels deep are hard to manage for most people.
- Each array within the multidimensional array can be either indexed array or associative array.
- We can use for looping through indexed array and foreach for looping through associative array.

**Example:**

```
<?php
// A two-dimensional array
$student=array
(
array(“Iniyan”,100,96),
array(“Kavin”,60,59),
```

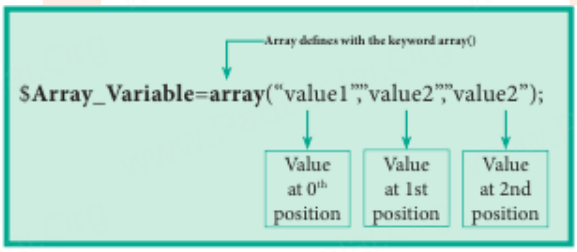
```
array("Nilani",1313,139)
);
echo $$student[0][0].": Tamil Mark: ".$student [0][1].". English mark: ".$student [0][2]."<br>";
echo $$student[1][0].": Tamil Mark: ".$student [1][1].". English mark: ".$student [1][2]."<br>";


echo $$student[2][0].": Tamil Mark: ".$student [2][1].". English mark: ".$student [2][2]."<br>";
?>
```

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

- An array is a special variable, which can hold more than one value of same data type (homogeneous) in single array variable.
- It's a collection of heterogeneous data.

**Array Syntax:**

- Array defines with the keyword array()




**a) Indexed Arrays**

- Arrays with numeric index for the available values in array variable which contains key value pair as user / developer can take the values using keys.

**Example:**

```
<?php
$teacher_name=array("Iniyan", "Kavin", "Nilani");
echo "The students name are " . $teacher_name[0] . ", " . $$teacher_name[1] . " and " .
$teacher_name[2] . ".";
?>
```

**b) Associative Arrays**

- Associative arrays are a key-value pair data structure.
- Instead of having storing data in a linear array, with associative arrays you can store your data in a collection and assign it a unique key which you may use for referencing your data.

**Associative Arrays Syntax**

**array(*key*=>*value*,*key*=>*value*,*key*=>*value*,*etc.*);**

***key*** = Specifies the key (numeric or string)

***value*** = Specifies the value

**Example:**

```
<?php
$teacher_name=array(“Iniyan”, “Kavin”, “Nilani”);
echo “The students name are “ . $teacher_name[0] . “, “ . $$teacher_name[1] . “ and “ .
$teacher_name[2] . “.”;
?>
```

**c)Multidimensional Arrays**

- A multidimensional array is an array containing one or more arrays.
- PHP understands multidimensional arrays that are two, three, four, five, or more levels deep.
- However, arrays more than three levels deep are hard to manage for most people.

**Example:**

```
<?php
// A two-dimensional array
$student=array
(
array(“Iniyan”,100,96),
array(“Kavin”,60,59),
array(“Nilani”,1313,139)
);
echo $$student[0][0].”: Tamil Mark: “.$student [0][1].”. English mark: “.$student [0][2].”<br>”;
echo $$student[1][0].”: Tamil Mark: “.$student [1][1].”. English mark: “.$student [1][2].”<br>”;
echo $$student[2][0].”: Tamil Mark: “.$student [2][1].”. English mark: “.$student [2][2].”<br>”;
?>
```

**5. Explain Indexed array and Associate array in PHP.**

**a) Indexed Arrays**

- Arrays with numeric index for the available values in array variable which contains key value pair as user / developer can take the values using keys.

**Example:**

```
<?php
$teacher_name=array(“Iniyan”, “Kavin”, “Nilani”);
echo “The students name are “ . $teacher_name[0] . “, “ . $$teacher_name[1] . “ and “ .

$teacher_name[2] . “.”;
?>
```

**b) Associative Arrays**

- Associative arrays are a key-value pair data structure.
- Instead of having storing data in a linear array, with associative arrays you can store your data in a collection and assign it a unique key which you may use for referencing your data.

**Associative Arrays Syntax**

**array(*key=>value,key=>value,key=>value*,*etc.*);**

***key*** = Specifies the key (numeric or string)

***value*** = Specifies the value

**Example:**

```
<?php
$teacher_name=array(“Iniyan”, “Kavin”, “Nilani”);
echo “The students name are “ . $teacher_name[0] . “, “ . $$teacher_name[1] . “ and “ .
$teacher_name[2] . “.”;
?>
```

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# 6. PHP CONDITIONAL STATEMENTS

## Section – A

**Choose the best answer** **(1 Mark)**

1. What will be the output of the following PHP code?

```
<?php
$x;
if ($x)
   print “hi” ;
else
   print “how are u”;
?>
```

**a) how are u** b) hi c) error d) no output

2. What will be the output of the following PHP code?

```
<?php
$x = 0;
if ($x++)
    print "hi";
else
    print "how are u";
?>
```

a) hi b) no output c) error **d) how are u**

3. What will be the output of the following PHP code?

```
<?php
$x=0;
if ($x==0)
        print " hi ";
else
        print " how are u ";
print "hello";
?>
```

a) how are u hello **b) hi hello** c) hi d) no output

**4.** Statement which is used to make choice between two options and only option is to be performed is written as

a. if statement **b. if else statement** c. then else statement d. else one statement

**5.** What will be the output of the following PHP code ?

```
<?php
$a = “”;
if ($a)
        print “all”;
if
else
        print “some”;
?>
```

a) all b) some **c) error** d) no output

**6.** What will be the output of the following PHP code ?

```
<?php
$a = “”;
if ($a)
        print “all”;
if
else
        print “some”;
?>
```

a) all b) some **c) error** d) no output

**7.** What will be the output of the following PHP code ?

```
<?php
$x = 10;
$y = 20;
if ($x > $y + $y != 3)
        print "hi" ;
else
        print "how are u";
?>
```

a) how are u **b) hi** c) error d) no output

**8.** What will be the output of the following PHP code ?

```
<?php
$x = 10;
$y = 20;
if ($x > $y && 1||1)
print “hi” ;
else
print “how are u”;   ?>
```

a) how are u **b) hi** c) error d) no output

**9.** What will be the output of the following PHP code ?

```
<?php
if (-100)
print “hi” ;
else
print “how are u”;
?>
```

a) how are u **b) hi** c) error d) no output

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define Conditional Statements in PHP**

- Conditional Statements performs different actions for different decisions in programming languages.

**Types of Conditional Statements**:

- if Statement
- if...else Statement
- if...elseif....else Statement
- switch Statement

**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.

**SYNTAX:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
```

**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.
- When the condition gets **false (fail)** the else block is executed.

**SYNTAX:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
else
{
Execute statement(s) if condition is false;
}
```

**4. List out Conditional Statements in PHP.**

**Types of Conditional Statements**:

- if Statement
- if...else Statement
- if...elseif....else Statement
- switch Statement

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

**SYNTAX:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
else
{
Execute statement(s) if 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.
- Switch statements work the same as if statements but they can check for multiple values at a time.

**8. Write Syntax of Switch statement.**

**SYNTAX:**

```
switch (n) {
case label1:
code to be executed if n=label1;
break;
case label2:
code to be executed if n=label2;
break;
case label3:
code to be executed if n=label3;
break;
...
default:
code to be executed if n is different from all labels;
}
```

**9. Compare if and if else statement.**

| If | If else |
|---|---|
| • If statement executes a statement or a group of statements if a specific condition is satisfied as per the user expectation. | • If statement executes a statement or a group of statements if a specific condition is satisfied by the user expectation.<br>• When the condition gets false (fail) the else block is executed. |

| | |
|---|---|
| | |
| **SYNTAX:**<br>if (condition)<br>{<br>Execute statement(s) if condition is true;<br>} | **SYNTAX:**<br>if (condition)<br>{<br>Execute statement(s) if condition is true;<br>}<br>else<br>{<br>Execute statement(s) if condition is false;<br>} |

## Section-C

**Answer the following questions** **(3 Marks)**

**1. Write the features of Conditional Statements in PHP.**

- Conditional statements are useful for writing decision making logics.
- Conditional statements are used to perform different actions for different decisions in different business logic.
- **TYPES**:
  - if Statement
  - if...else Statement
  - if...elseif....else Statement
  - switch Statement

**2. Write 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.
- **else if Statement:** The 'if ' statement can also follow an 'else' statement, if you want to check for another condition in the else part.

**3. Differentiate Switch and if else statement.**

| Switch | If else |
|---|---|
| Switch statement uses single expression for multiple choices. | If-else statement uses multiple statement for multiple choices. |
| It test only for equality. | It test for equality as well as for logical expression. |
| It evaluates only character or integer value. | Evaluates any type |
| If switch statements does not match any cases, the default statements is executed. | If the condition fails, then by default the else statement is executed. |

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

- The switch statement is used to perform different actions based on different conditions.
- Switch statement uses single expression for multiple choices.
- It test only for equality.
- It evaluates only character or integer value.
- If switch statements does not match any cases, the default statements is executed.

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

| if statement | if elseif else statement |
|---|---|
| • If statement executes a statement or a group of statements if a specific condition is satisfied as per the user expectation. | • If-elseif-else statement is a combination of if-else statement.<br>• More than one statement can execute the condition based on user needs. |
| • **Syntax:**<br>if (condition)<br>{<br>Execute statement(s) if condition is true;<br><br>} | • **Syntax:**<br>if (1stcondition)<br>{<br>Execute statement(s) if condition is true;<br><br>}<br>elseif(2ndcondition)<br>{<br>Execute statement(s) if 2ndcondition is true;<br>} |

| | |
|---|---|
| | else<br>{<br>Execute statement(s) if both conditions are false;<br>} |

## Section - D

**Answer the following questions:** **(5 Marks)**

**1. Explain Function of Conditional Statements in PHP.**

**PHP Conditional Statements:**

- Conditional statements are useful for writing decision making logics.
- Conditional statements are used to perform different actions for different decisions in different business logic.
- **TYPES**:
  - if Statement
  - if...else Statement
  - if...elseif....else Statement
  - switch Statement

➢ **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.

➢ **Syntax:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
```

➢ **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.
- When the condition gets false (fail) the else block is executed.

➢ **Syntax:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
```

```
else
{
Execute statement(s) if condition is false;
}
```

➢ **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.

➢ **Syntax:**

```
if (1stcondition)
{
Execute statement(s) if condition is true;
}
elseif(2ndcondition)
{
Execute statement(s) if 2ndcondition is true;
}
else
{
Execute statement(s) if both conditionsarefalse;
}
```

➢ **Switch Case:**

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

➢ **Syntax:**

```
switch (n) {
case label1:
code to be executed if n=label1;
break;
case label2:
code to be executed if n=label2;
break;
case label3:
code to be executed if n=label3;
break;
...
default:
code to be executed if n is different from all labels;
}
```

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

➢ **Switch Case:**

- The switch statement is used to perform different actions based on different conditions.
- Switch statement uses single expression for multiple choices.
- It test only for equality.
- It evaluates only character or integer value.
- Use `break` to prevent the code from running into the next case automatically.
- The `default` statement is used if no match is found.

➢ **Syntax:**

```
switch (n) {
case label1:
code to be executed if n=label1;
break;
case label2:
code to be executed if n=label2;
break;
case label3:
code to be executed if n=label3;
break;
...
default:
code to be executed if n is different from all labels; }
```

➢ **Example:**

```
<?php
$favcolor = “red”;
switch ($favcolor) {
case “red”:
echo “Your favorite color is red!”;
break;
case “blue”:
echo “Your favorite color is blue!”;
break;
case “green”:
echo “Your favorite color is green!”;
break;
default:
```

```
echo “Your favorite color is neither red, blue, nor green!”;
}
?>
```

➢ **Output:**

Your favorite color is red

**3. Explain the process Conditional Statements in PHP?**

**PHP Conditional Statements:**

- Conditional statements are useful for writing decision making logics.
- Conditional statements are used to perform different actions for different decisions in different business logic.
- **TYPES**:
  - if Statement
  - if...else Statement
  - if...elseif....else Statement
  - switch Statement

➢ **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.

➢ **Syntax:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
```

➢ **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.
- When the condition gets false (fail) the else block is executed.

➢ **Syntax:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
else
{
```

Execute statement(s) if condition is false;
}

➢ **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.

➢ **Syntax:**

```
if (1stcondition)
{
Execute statement(s) if condition is true;
}
elseif(2ndcondition)
{
Execute statement(s) if 2ndcondition is true;
}
else
{
Execute statement(s) if both conditionsarefalse;
}
```

➢ **Switch Case:**

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

➢ **Syntax:**

```
switch (n) {
case label1:
code to be executed if n=label1;
break;
case label2:
code to be executed if n=label2;
break;
case label3:
code to be executed if n=label3;
break;
...
default:
code to be executed if n is different from all labels;
}
```

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**4. Explain concepts of if elseif else statement.**

➢ **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.
- **else if Statement:** The 'if ' statement can also follow an 'else' statement, if you want to check for another condition in the else part.

➢ **Syntax:**

```
if (1stcondition)
{
Execute statement(s) if condition is true;
}
elseif(2ndcondition)

{
Execute statement(s) if 2ndcondition is true;
}
else
{
Execute statement(s) if both conditions are false;
}
```

**Example:**

```
<?php
$d = date("D");
if($d == "Fri"){
        echo "Have a nice weekend!";
}elseif($d == "Sun"){
        echo "Have a nice Sunday!";
}else{
        echo "Have a nice day!";
} ?>
```

**Explanation and output of the program:**

The above example will output,

- "Have a nice weekend!" if the current day is Friday.
- "Have a nice Sunday!" if the current day is Sunday.
- Otherwise it will output "Have a nice day!".

**5. Explain if else statement in PHP.**

➢ **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.
- When the condition gets false (fail) the else block is executed.

➢ **Syntax:**

```
if (condition)
{
Execute statement(s) if condition is true;
}
else
{
Execute statement(s) if condition is false;
}
```

➢ **Example:**

```
<?php
$num=12;
if($num%2==0){
echo "$num is even number";
}

else
{
echo "$num is odd number";  }  ?>
```

**Output:**

```
12 is even number
```

➢ **Working of the Program:**

- The variable $num is assigned to 12.
- The condition has been checked with the variable $num.
- If the condition is true, the true block will be executed.
- If it is false else block will be executed.

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# 7. LOOPING STRUCTURE

## Section – A

**Choose the best answer** **(1 Mark)**

**1.** Most complicated looping structure is

a) While b) Do While **c) For** d) None of them

**2.** Loops that iterate for fixed number of times is called

a) Unbounded loops **b) Bounded loops** c) While loops d) For loops

**3.** Which loop evaluates condition expression as Boolean, if it is true,it executes statements and when it is false it will terminate?

a) For loop b) For each loop c) While loop **d) All of them**

**4.** Which loop evaluates condition expression as Boolean, if it is true, it executes statements and when it is false it will terminate?

a) For loop b) For each loop c) While loop **d) All of them**

**5.** What will be displayed in a browser when the following PHP code is executed:

```
<?php
for ($counter = 20; $counter < 10;$counter++){
echo "Welcome to Tamilnadu";
}
echo "Counter is:" . $counter;
?>
```

a) Welcome to Tamilnadu

**b) Counter is: 20**

c) Welcome to Tamilnadu Counteris: 22

d) Welcome to Tamilnadu Welcome to Tamilnadu Counter is: 22

**6.** What will be displayed in a browser when the following PHP code is executed:

```
<?php
for ($counter = 10; $counter < 10;
$counter = $counter + 5){
echo “Hello”;
}
?>
```

a) Hello Hello Hello Hello Hello b) Hello Hello Hello

c) Hello **d) None of the above**

**7.** PHP supports four types of looping techniques;

a) for loop b) while loop c) foreach loop **d) all the above**

**8.** Consider the following code

```
<? php
$count=12;
do{
printf("%d squared=%d<br/>",
$count, pow($count,2));
} while($count<4);
?>
```

What will be the output of the code?

a) 12 squared 141 b) 12 squared=141 c) "12 squared=141" **d) Execution error**

**9.** What will be the output of the following PHP code ?

```
<?php
for ($x = 1; $x < 10;++$x)
{
print "*\t";
}
?>
```

a) ********** **b) *********** c) ********** d) Infinite loop

**10.** What will be the output of the following PHP code ?

```
<?php
for ($x = -1; $x < 10;--$x)
{
print $x;
}
?>
```

a) 123456713910412 b) 123456713910 c) 1234567139104 **d) Infinite loop**

## Section-B

**Answer the following questions** **(2 Marks)**

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

- Looping Structures are useful for writing iteration logics.
  - **CATEGORIES**
    - for Loop
    - foreach Loop
    - While Loop
    - Do While Loop

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

- For loops execute a block of code for a specified number of times.
- The for loop is used when you know in advance how many times the script should run.

**Syntax:**

```
for (init counter; test counter; increment counter){
code to be executed;
}
```

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

- The foreach construct provides an easy way to iterate over arrays.
- It is used to loop through each key/value pair in an array.
- In For each, during loop iteration the value of the current array element is assigned to $value variable and the array pointer is shifted by one, until it reaches the end of the array element.

**Syntax:**

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

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

- for Loop
- foreach Loop
- While Loop
- Do While Loop

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

**Syntax:**

```
for (init counter; test counter; increment counter){
code to be executed;
}
```

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

**Syntax:**

```
for each ($array as $value){

code to be executed;
}
```

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

**Syntax:**

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

**8. Write Syntax of Do while loop in PHP.**

**Syntax:**

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

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

| For loop | For each loop |
|---|---|
| • For loops execute a block of code for a specified number of times until the condition fails. | • The **foreach** construct provides an easy way to iterate over arrays |
| • The for loop is used when you know in advance how many times the script should run. | • The **foreach** loop is used to loop through each key/ value pair in an array. |
| • **Syntax:**<br>for (init counter; test counter; increment counter){<br>code to be executed;<br>} | • **Syntax:**<br>for each ($array as $value){<br>code to be executed;<br>} |

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

- The foreach construct provides an easy way to iterate over arrays
- The foreach loop is used to loop through each key/ value pair in an array.

## Section-C

**Answer the following questions** **(3 Marks)**

**1. Write the features Looping Structure.**

- Looping Structures are useful for writing iteration logics.
- This helps the user to save both time and effort of writing the same code multiple times.
  - **CATEGORIES**
    - for Loop
    - foreach Loop
    - While Loop
    - Do While Loop

**2. Write the purpose of Looping Structure in PHP.**

- Loops in PHP is used to execute a statement or a block of statements, multiple times until and unless a specific condition is met.
- Looping Structures are useful for writing iteration logics.
- This helps the user to save both time and effort of writing the same code multiple times.

**3. Differentiate For each and While loop.**

| **For each loop** | **While loop** |
|---|---|
| • The **foreach** construct provides an easy way to iterate over arrays | • **While** loop is used for simple iteration logics. |
| • The **foreach** loop is used to loop through each key/ value pair in an array. | • It executes the loop if specified condition is true. |
| • **Syntax:**<br>for each ($array as $value){<br>code to be executed;<br>} | • **Syntax:**<br>while (condition is true) {<br>code to be executed;<br>} |

**4. Write short notes on Do while Loop.**

- Do while loop always run the statement inside of the loop block at the first time execution.
- Then it is checking the condition whether true or false.
- It executes the loop, if the specified condition is true.
- **Syntax:**

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

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

| While loop | Do while Loop |
|---|---|
| • **While loops** are used to execute a block of code after evaluating the condition becomes true. | • **Do… while** - executes the block of code at least once before evaluating the condition. |
| • In 'while' loop the controlling condition appears at the start of the loop. | • In 'do-while' loop the controlling condition appears at the end of the loop. |
| • **Syntax:**<br>while (condition is true) {<br>code to be executed;<br>} | • **Syntax:**<br>do {<br>code to be executed;<br>} while (condition is true); |

## Section - D

**Answer the following questions:** **(5 Marks)**

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

**Looping Structure:**

- Looping statements are used to repeat the same block of code a given number of times, or until certain condition is met.
- **CATEGORIES**
  - for Loop
  - for each Loop
  - While Loop
  - Do While Loop

**For Loop:**

- For loops execute a block of code for a specified number of times.
- The for loop is used when you know in advance how many times the script should run.

**Syntax:**

```
for (init counter; test counter; increment counter){
code to be executed;
}
```

**For each Loop:**

- The **foreach** construct provides an easy way to iterate over arrays.
- It is used to loop through each key/value pair in an array.
- In **foreach**, during loop iteration the value of the current array element is assigned to $value variable and the array pointer is shifted by one, until it reaches the end of the array element.

**Syntax:**

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

**While Loop:**

- While loop is used for simple iteration logics.
- It executes the loop if specified condition is true.

**Syntax:**

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

**Do while Loop:**

- Do while loop always run the statement inside of the loop block at the first time execution.
- Then it is checking the condition whether true or false.
- It executes the loop, if the specified condition is true.
- **Syntax:**

```
do {
code to be executed;
```

} while (condition is true);

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

**For each Loop:**

- The **foreach** construct provides an easy way to iterate over arrays.
- It is used to loop through each key/value pair in an array.
- In For each, during loop iteration the value of the current array element is assigned to $value variable and the array pointer is shifted by one, until it reaches the end of the array element.
- **Foreach** works only on arrays and objects, and will issue an error when you try to use it on a variable with a different data type or an uninitialized variable.

**Syntax:**

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

**Example:**

```
<?php
$Student_name = array(“Magilan”, “Iniyan”,
“Nilani”, “Sibi”, “Shini”);

foreach ($Student_name as $value) {
echo “$value <br>”;
}
?>
```

**Output:**

“Magilan”
Iniyan”
“Nilani”
“Sibi”
“Shini”

- Here in this example value of the array **$student_name** is read one by one using foreach loop and displayed the value.

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

**Do while Loop:**

- Do while loop always run the statement inside of the loop block at the first time execution.
- Then it is checking the condition whether true or false.
- It executes the loop, if the specified condition is true.
- **Syntax:**

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

**Example:**

```
<?php
$Student_count = 5;
$student_number = 1;
do{
echo "The student number is:". $student_number . "<br>";
$student_number++;
}
while($student_number <= $Student_count);?>
```

**Output:**

The student number is:1

The student number is:2

The student number is:3

The student number is:4

The student number is:5

- Here in this example, the condition becomes true until ($student_number <= $Student_count), the loop executes for 5 times and display the result.
-

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

**For Loop:**

- For loops execute a block of code for a specified number of times.
- The for loop is used when you know in advance how many times the script should run.

**Syntax:**

```
for (init counter; test counter; increment counter){
code to be executed;
}
```

**Parameters:**

- **init counter:** Initialize the loop initial counter value
- **Test counter:**
  - Evaluated for every iteration of the loop.
  - If it evaluates to TRUE, the loop continues.
  - If it evaluates to FALSE, the loop ends.
- **Increment counter**: Increases the loop counter value.

**Example:**

```
<?php
for ($i = 0; $i<= 5; $i++) {
echo "The number is:" . $i . "<br>";
}
?>
```

**Output:**

The student number is:1
The student number is:2
The student number is:3
The student number is:4
The student number is:5

- Here in this example, the condition becomes true until ($student_number <= $Student_count), the loop executes for 5 times and display the result.

**5. Explain array concepts in Looping Structure.**

**For each Loop:**

- The **foreach** construct provides an easy way to iterate over arrays.
- It is used to loop through each key/value pair in an array.
- In For each, during loop iteration the value of the current array element is assigned to $value variable and the array pointer is shifted by one, until it reaches the end of the array element.
- **Foreach** works only on arrays and objects, and will issue an error when you try to use it on a variable with a different data type or an uninitialized variable.

**Syntax:**

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

**Example:**

```
<?php
$Student_name = array(“Magilan”, “Iniyan”,
“Nilani”, “Sibi”, “Shini”);
foreach ($Student_name as $value) {
echo “$value <br>”;
}
?>
```

**Output:**

“Magilan”
Iniyan”
“Nilani”
“Sibi”
“Shini”

- Here in this example value of the array **$student_name** is read one by one using foreach loop and displayed the value.

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# 8. FORMS AND FILES

## Section – A

**Choose the best answer** **(1 Mark)**

1. When you use the $_GET variable to collect data, the data is visible to..

a) none b) only you **c) everyone** d) selected few

2. Which one of the following should not be used while sending passwords or other sensitive information?

**a) GET** b) POST c) REQUEST d) NEXT

3. Which directive determines whether PHP scripts on the server can accept file uploads?

**a) file_uploads** b) file_upload c) file_input d) file_intake

4. In HTML form <input type="text"> is used for

**a) One line text** b) Block of text c) One paragraph d) None

5. HTML classes that is already defined and allow us to apply styles on it are called as

a) Pseudo classes **b) Css classes** c) Javascript classes d) None

6. If you would like to read a file character by character which function do you use?

a) fopen ( ) b) fread ( ) **c) fgetc ( )** d) file ( )

7. PHP is a _____ typed language.

a) User b) Loosely **c) Server** d) System

8. What does fopen() function do in PHP?

**a) It used to open files in PHP** b) It used to open Remote Server

c) It used to open folders in PHP d) It used to open Remote Computer

9. How PHP files can be accessed?

a) Through Web Browser b) Through HTML files

c) Through Web Server **d) All of Above**

10. Which of the following functions reads the entire contents of a file?

a) fgets() **b) file_get_contents()** c) fread() d) readfile()

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define HTML form controls.**

- Main objective of PHP and HTML form controls are to **collect data from users**.
- **CONTROL TYPES:**
  - Text inputs
  - Buttons
  - Checkbox
  - Radio box
  - File Select
  - Form Tag

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

- Form tag is used to mention a method (POST or GET) and control the entire form controls in the HTML document.
- **Post Method:** The input data sent to the server with POST method is stored in the request body of the client's HTTP request.
- **Get 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.

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

- Validation is a process of checking the input data submitted by the user from client machine.
- There are two types of validation available in PHP. They are,
  - Client-Side Validation
  - Server Side Validation

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

- **HTML form controls:**
  - Text inputs
  - Buttons
  - Checkbox
  - Radio box
  - File Select
  - Form Tag

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

**Syntax:**

<input type=”text” name=”name”>

**6. Define File handling in PHP.**

- File handling is an important activity of all web application development process.
- Files are processed for different tasks using the following events:
  - PHP Open a File,
  - PHP Read a File,
  - PHP Close a File,
  - PHP Write a File,
  - PHP Appending a File and
  - PHP uploading a File.

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

- **Select a file:** <input type="file" name="myFile">
- The **<input type="file">** defines a file-select field and a **"Browse"** button for file uploads.
- In a form, the file value of the type attribute allows you to define an input element for file uploads.
- This displays a browse button, which the user can click on to select a file on their local computer.

**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 |
|---|---|
| The **TEXT BOX** is a single line box. | The **TEXT AREA** is a multiple line box. |
| They are generally used for collecting information such as names, email addresses, URLs, etc.. | A text area can hold an unlimited number of characters, and the text |

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

- **fopen()** is a system function available in PHP.
- This function helps to open a file in the server.
- It contains two parameters one for the file and the other one specifies in which mode the file should be opened (Read/Write).

❖ **Syntax:** $file_Object= fopen("FileName", "Read/WriteMode") or die("Error Message!");

## Section-C

**Answer the following questions** **(3 Marks)**

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

❖ A HTML form will take input from the site visitor and then will post it to a back-end application such as CGI, ASP Script or PHP script etc.

❖ All input values are synchronized and sent to the server via POST method or GET method.

❖ Method is an attribute form tag in HTML.

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

❖ Form tag is used to mention a method (POST or GET) and control the entire form controls in the HTML document.

❖ All input values are synchronized and sent to the server via POST method or GET method.

❖ **Post Method:** The input data sent to the server with POST method is stored in the request body of the client's HTTP request.

❖ **Get 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.

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

| Get Method | Post Method |
|---|---|
| ❖ Get method passes the request parameter in the URL String. | ❖ POST method passes request parameter in request body. |
| ❖ GET requests can be cached | ❖ POST requests are never cached |
| ❖ GET requests remain in the browser history | ❖ POST requests do not remain in the browser history |
| ❖ GET requests have length restrictions | ❖ POST requests have no restrictions on data length |

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

- ❖ File handling is an important activity of all web application development process.
- ❖ Files are processed for different tasks using the following events:
  - PHP Open a File,
  - PHP Read a File,
  - PHP Close a File,
  - PHP Write a File,
  - PHP Appending a File and
  - PHP uploading a File.

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

- ❖ File handling is an important activity of all web application development process.
- ❖ Files are processed for different tasks using the following functions:
  - PHP Open a File:

    The **fopen()** is a system function which helps to open a file in the server.
  - PHP Read a File:

    The **fread()** function reads from an open file.
  - PHP Close a File:

    The **fclose()** function is used to close an opened file.
  - PHP Write a File:

    The **fwrite()** function is used to write to a file.
  - PHP Appending a File:

    The **file_put_contents()** function is used to Append to a file.
  - PHP uploading a File:

    The function **"file_uploads = On"** allows the users to upload files to the server.

## Section - D

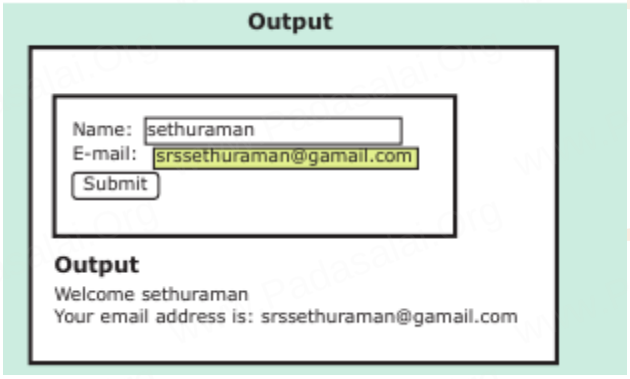
**Answer the following questions:** **(5 Marks)**

**1. Explain Form Handling methods.**

- ❖ Form tag is used to mention a method (POST or GET) and control the entire form controls in the HTML document.

- When the user keying the input data in HTML controls and clicks the submit button the request will be generated and reaches a PHP file which is mentioned in the FORM tag under the Action attribute.
- All input values are synchronized and sent to the server via POST method or GET method.
- Method is an attribute form tag in HTML.
- Once the data reaches the server, two PHP variables such as $_POST and $_GET collects the data and prepares the response accordingly.
- **Post Method:**
  - The input data sent to the server with POST method is stored in the request body of the client's HTTP request.
- **Get 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.

**Example for Form:**



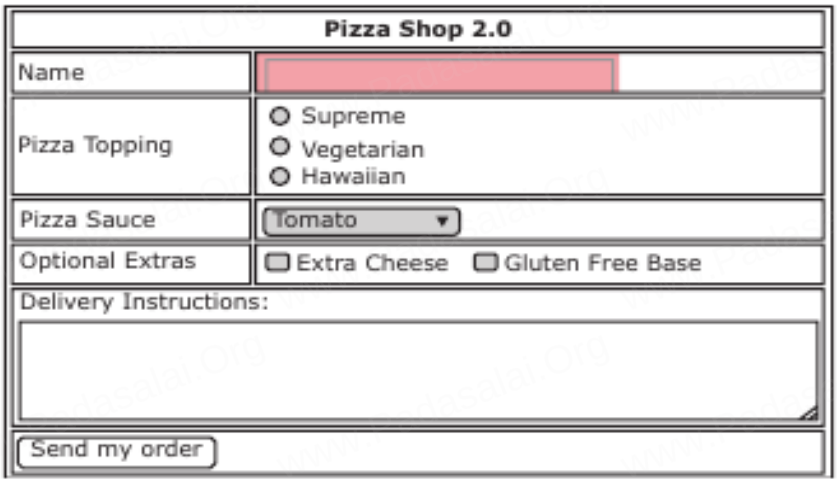

**2. Discuss in detail about HTML form controls.**

- Main objective of PHP and HTML form controls are to **collect data from users**.
- The following control types are available in HTML form controlling:
  - Text inputs
  - Buttons
  - Checkbox
  - Radio box
  - File Select
  - Form Tag

**Html Form Controls:**

- **Text inputs** contain textbox and text area controls.
- **Buttons** may contain Submit button, Reset button and Cancel Button.
- **Checkbox** is the important feature whichselects more than one value from the HTML form.
- **Radio box** is similar to checkbox but one value can be chosen at a time.
- **File select** is the best feature to select one file from the local machine to server machine at a time.
- **Form tag** is used to mention a method (POST or GET) and control the entire form controls in the HTML document.

**Example:**




**3. Explain the process File handling.**

- File handling is an important activity of all web application development process.
- Files are processed for different tasks using the following events:
  - PHP Open a File,
  - PHP Read a File,
  - PHP Close a File,
  - PHP Write a File,
  - PHP Appending a File and
  - PHP uploading a File.

**1) PHP Open a File**

- fopen() is a system function helps to open a file in the server.
- It contains two parameters one for the file and the other one specifies in which mode the file should be opened (Read/Write).

**Syntax:**

$file_Object= fopen("FileName", "Read/WriteMode") or die("Error Message!");

**2) PHP Read a File:**

- The fread() function reads from an open file. The file object comes from fopen function.

**Syntax:**

fread($file_Object,filesize("FileName"));

**3) PHP Close a File:**

- The fclose() function is used to close an opened file.
- The file object comes from fopen function.

**Syntax:**

fclose($file_Object);

**4) PHP write a File:**

- The fwrite() function is used to write to a file.

**Syntax:**

fwrite($myfile, $txt);

**5) PHP Appending a File**

- The file_put_contents() function is used to Append to a file.

**Syntax:**

file_put_contents(file,data,mode,context)

**6) File Upload:**

- The function **"file_uploads = On"** allows the users to upload files to the server.

**4. Explain concepts of HTTP Uploading process.**

❖ File upload is the best feature to select one file from the local machine to server machine.

❖ Form tag is used to mention a method as POST or GET and encrypt attribute mentioned as "multipart/ form-data".

❖ In the <Input> tag mention type="file" attribute shows the input field as a file-select control, with a "Browse" button next to the input control.

❖ Consider a form sends data to a file called "Student_photo_upload.php".

❖ In Server machine "php.ini" file, search for the file_uploads directive, and set it to On:
**"file_uploads = On"**

❖ After submitting the upload button the request reaches to Student_photo_upload.php file.

- In the file $_FILES variable collects all uploaded file information such as name of the file, size of the file and extension of the file etc.
- All the details are checked thoroughly and the errors are saved in an array variable.
- The file finally moves under the image directory if the array error variable is empty.

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

- File handling is an important activity of all web application development process.
- Files are processed for different tasks using the following events:
  - PHP Open a File,
  - PHP Read a File,
  - PHP Close a File,
  - PHP Write a File,
  - PHP Appending a File and
  - PHP uploading a File.

**1) PHP Open a File**

- **fopen()** is a system function helps to open a file in the server.
- It contains two parameters one for the file and the other one specifies in which mode the file should be opened (Read/Write).

**Syntax:**

$file_Object= fopen("FileName", "Read/WriteMode") or die("Error Message!");

**2) PHP Read a File:**

- The fread() function reads from an open file. The file object comes from fopen function.

**Syntax:**

fread($file_Object,filesize("FileName"));

**3) PHP Close a File:**

- The fclose() function is used to close an opened file.
- The file object comes from fopen function.

**Syntax:**

fclose($file_Object);

**4) PHP write a File:**

- The fwrite() function is used to write to a file.

**Syntax:**

fwrite($myfile, $txt);

**5) PHP Appending a File**

- The file_put_contents() function is used to Append to a file.

**Syntax:**

file_put_contents(file,data,mode,context)

**6) File Upload:**

- The function **"file_uploads = On"** allows the users to upload files to the server.

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# 9. CONNECTING PHP AND MYSQL

## Section – A

**Choose the best answer** **(1 Mark)**

**1.** Which one of the following statements instantiates the mysqli class?

a) mysqli = new mysqli() **b) $mysqli = new mysqli()**
c) $mysqli->new.mysqli() d) mysqli->new.mysqli()

**2.** which one is correct way, we can retrieve the data in the result set of MySQL using PHP?

a) mysql_fetch_row b) mysql_fetch_array
c) mysql_fetch_object **d) All the above**

**3.** How Can we Create a Database Using PHP and MySQL?

**a) mysqli_create_db("Database Name")** b) mysqli_create_db("Data")
c) create_db("Database Name") d) create_db("Data")

**4.** Which is the correct function to execute the SQL queries in PHP ?

**a) mysqli_query("Connection Object","SQL Query")**
b) query("Connection Object","SQL Query")
c) mysql_query("Connection Object","SQL Query")
d) mysql_query("SQL Query")

**5.** Which is the correct function Closing Connection in PHP ?

**a) mysqli_close("Connection Object");** b) close("Connection Object");
c) mysql_close("Connection Object"); d) mysqli_close("Database Object");

**6.** Which is the correct function to establish Connection in PHP ?

**a) mysqli_connect("Server Name ","User Name","Password","DB Name");**
b) connect("Server Name ","User Name","Password","DB Name");
c) mysql_connect("Server Name ","User Name","Password","DB Name");
d) mysqli_connect ("Database Object");

**7.** Which is the not a correct MySQL Function in PHP ?

a) Mysqli_connect() Function b) Mysqli_close() Function
**c) mysqli_select_data() Function** d) mysqli_affected_rows() Function

**8.** How many parameter are required for MYSQLi connect function in PHP ?

a) 2 b) 3 **c) 4** d) 5

**9.** How many parameter are required for MYSQLi query function in PHP ?

**a) 2** b) 3 c) 4 d) 5

**10.** How many parameter are required for MYSQLi Close function in PHP ?

**a) 1** b) 2 c) 3 d) 5

**11.** Which version of PHP supports MySQLi fuctions ?

a) Version 2.0 b) Version 3.0 c) Version 4.0 **d) Version 5.0**

## Section-B

**Answer the following questions** **(2 Marks)**

**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() Function
- mysqli_fetch_assoc() Function

**2. What is MySQLi function?**

- MySQLi is extension in PHP scripting language which gives access to the MYSQL database.
- Functions are available for MySQL Database connectivity and executing SQL queries.

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

- Database Connections
- Managing Database Connections
- Performing Queries
- Closing Connection

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

| Connection | Close function |
|---|---|
| Connect to Database Server machine via PHP scripting language using Mysqli_connect() Function. | mysqli_close() Function is used to close an existing opened database connection between PHP scripting and MySQL Database Server. |
| **Syntax:** mysqli_connect("Server Name ","User Name","Password","DB Name"); | **Syntax:** mysqli_close("Connection Object"); |

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

EXAMPLES:

1) SELECT * FROM Customers;

2) SELECT CustomerName, City FROM Customers;

3) SELECT * FROM Customers WHERE Country='Mexico';

4) SELECT * FROM Customers WHERE Country='Germany' AND City='Berlin';

5) DELETE FROM Customers WHERE CustomerName='Alfreds Futterkiste';

**6. What is Connection string?**

- The variables used to connect to the Database server are
  - $servername -> Database Server Server IP address
  - $username -> Database Server User Name
  - $password -> Database Server Password
  - $DB_Name -> Database Name
- The mysqli_connect function uses these variables and connect Database server from PHP scripting.
- If connection gets fail, output will be printed with MySQL error code.
- Otherwise connection is success.

**7. What is web Database?**

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

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

- The mysql_fetch_assoc() function returns a row from a recordset as an associative array.
- This function gets a row from the mysql_query() function and returns an array on success, or FALSE on failure or when there are no more rows.
- **Syntax:**

mysql_fetch_assoc(data)

**9. Define mysqli_connect_error() Function.**

- The mysqli_connect_error() function returns the error description from the last connection error, if any.

**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);

## Section-C

**Answer the following questions** **(3 Marks)**

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

- "mysqli_query" is a function, helps to execute the SQL query statements in PHP scripting language.

**Syntax:**

mysqli_query("Connection Object","SQL Query")

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

- In PHP Scripting language many functions are available for MySQL Database connectivity ,executing SQL queries, and management.
  - Mysqli_connect() Function
  - Mysqli_close() Function
  - mysqli_select_db() Function
  - mysqli_affected_rows() Function
  - mysqli_connect_error() Function
  - mysqli_fetch_assoc() Function

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

| mysqli_affected_rows() Function | mysqli_fetch_assoc() Function |
|---|---|
| • The mysqli_affected_rows() function returns the number of affected rows in the previous SELECT, INSERT, UPDATE, REPLACE, or DELETE query. | • The mysql_fetch_assoc() function returns a row from a recordset as an associative array. |
| • **Syntax:** mysqli_affected_rows(connection); | • **Syntax:** mysql_fetch_assoc(data); |

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

**Syntax:**

mysqli_connect("Server Name ","User Name","Password","DB Name");

**Example:**

$conn = mysqli_connect($servername, $username, $password,$DB_name);

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

- Before accessing MySQL Database, connect to Database Server machine via PHP scripting language using Mysqli_connect() Function.
- This function requires four parameters to connect to database server.
- Database Server name, Database username, password and Database Name.
- **Syntax:**

  mysqli_connect("Server Name ","User Name","Password","DB Name");
- **Example:**

  $conn = mysqli_connect($servername, $username, $password,$DB_name);

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## Section - D

**Answer the following questions:** **(5 Marks)**

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

- In PHP Scripting language many functions are available for MySQL Database connectivity and executing SQL queries.
  - Mysqli_connect() Function
  - Mysqli_close() Function
  - mysqli_select_db() Function
  - mysqli_affected_rows() Function
  - mysqli_connect_error() Function
  - mysqli_fetch_assoc() Function

**i) Mysqli_connect() Function:**

- Before accessing MySQL Database, connect to Database Server machine via PHP scripting language using **Mysqli_connect() Function**.

**Syntax:**

mysqli_connect("Server Name ","User Name","Password","DB Name");

**ii) Mysqli_close() Function:**

- **mysqli_close()** Function is used to close an existing opened database connection between PHP scripting and MySQL Database Server.

**Syntax:** mysqli_close("Connection Object");

**iii) Mysqli_select_db() function:**

The **mysqli_select_db()** function is used to change the default database for the connection.

**Syntax:**

mysqli_select_db(*connection,dbname*);

**iv) Mysqli_fetch_assoc() Function:**

- The **mysql_fetch_assoc()** function returns a row from a recordset as an associative array.

**Syntax:**

mysql_fetch_assoc(data);

**v) Mysqli_connect_error() Function:**

- The **mysqli_connect_error()** function returns the error description from the last connection error, if any.

**Syntax:**

mysqli_connect_error()*;*

**vi) 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);**

**2. Explain the Database error handling and management process in PHP?**

**Managing Database Connections**

The below code snippet describes managing database connection methods and features.

```
<?php
$servername = “localhost”;
$username = “username”;
$password = “password”;
$DB_name = “School_DB”;
$conn = mysqli_connect($servername, $username, $password,$DB_name);
if (!$conn) {
die(“Connection failed: “ . mysqli_connect_error());
}
echo “Connected successfully”;
?>
```

- In the above code snippet, three variables are used to connect to the Database server. They are,
  - $servername -> Database Server Server IP address
  - $username -> Database Server User Name
  - $password -> Database Server Password
  - $DB_Name -> Database Name
- The mysqli_connect function uses these variables and connect Database server from PHP scripting.
- If connection gets fail, output will be printed with MySQL error code.
- Otherwise connection is success.

**3. Explain in details types of MySQL connection method in PHP.**

**Database Connections:**

- Before accessing MySQL Database, connect to Database Server machine via PHP scripting language using Mysqli_connect() Function.

**Syntax:**

mysqli_connect("Server Name ","User Name","Password","DB Name");

- This function requires four parameters to connect to database server.
- Database Server name, Database username, password and Database Name.

**Managing Database Connections**

The below code snippet describes managing database connection methods and features.

```
<?php
$servername = "localhost";
$username = "username";
$password = "password";
$DB_name = "School_DB";
$conn = mysqli_connect($servername, $username, $password,$DB_name);
if (!$conn) {
die("Connection failed: " . mysqli_connect_error());
}
echo "Connected successfully"; ?>
```

- In the above code snippet, three variables are used to connect to the Database server. They are,
  - $servername -> Database Server Server IP address
  - $username -> Database Server User Name
  - $password -> Database Server Password
  - $DB_Name -> Database Name
- The mysqli_connect function uses these variables and connect Database server from PHP scripting.
- If connection gets fail, output will be printed with MySQL error code.
- Otherwise connection is success.

**4. Explain MySQLi Queries with examples.**

- The main goal of MySQL and PHP connectivity is to retrieve and manipulate the data from MySQL database server.
- The SQL query statements are helping with PHP MySQL extension to achieve the objective of MySQL and PHP connection.
- "mysqli_query" is a function, helps to execute the SQL query statements in PHP scripting language.

**Syntax:**

mysqli_query("Connection Object","SQL Query")

**Example:**

```
$con=mysqli_connect("localhost","my_user","my_password","Student_DB ");
$sql="SELECT student_name,student_age FROM student";
mysqli_query($con,$sql);
```

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# 10. Introduction to Computer Networks

## Section – A

**Choose the best answer** **(1 Mark)**

1. A set of computers connecting together is called as ----------

**a) Network** b) Server c) Hub d) Node

2. Computer network devices that originates route and terminate the data were called as

a) Hub b) Resource **c) Node** d) Cable

3. Match the period and methods available on history of computer networking in the Internet

a) 1950 - X.25 TCP/IP

b) 1966 - SAGE

c) 1976 - WAN

d) 1972 - ARCNET

a 4321 b 3421 c 1234 **d 2341**

4. Western Electric introduced the first widely used ---------- that implemented true computer control.

a) Packet switch b) Arpanet c) Host **d) Telephone switch**

5. Wi-Fi is short name for

**a) Wireless Fidelity** b) Wired fidelity c) Wired fiber optic d) Wireless fiber optic

6. People everywhere can express and publish their ideas and opinions via

a) Tele-medicine **b) blogging** c) Server d) Node

7. Which one of the following periods, the speed capacity supported towards gigabit on computer network?

a) SABRE b) SAGE **c) NEW FIBRE OPTICS** d) ARCNET

8 One among them was challenging to the business people on computer networking

a) Hacking b) Viruses **c) Both a & b** d) none of this above

9. ---------- able to predict, manage, and protect the computer network at Internet

**a) Artificial intelligence** b) Broadband provider c) Cloud computing d) Transceivers

10. ----------use less power comparing with single transmitter or satellite often cell towers nearer

**a) Mobile devices** b) Transistors c) WIFI d) Communication

11. People now a days getting relaxed via

a) Business b) Corporate company c) News papers **d) Social media**

12. Which one of the following is not the social media

**a) Gmail** b) Facebook c) twitter d) Linkedin

13. Facebook was created at ----------year

a) 2002 **b) 2004** c) 2013 d) 2010

14. In mobile network, land areas for network coverage was distributed as

a) Firmware **b) cells** c) Range d) Service

15. Which one were harmful to computer

a) Bloggers b) Browser **c) Hackers** d) twitter

16. Which innovation made the people to use Internet?

a) Social web b) Mobile technology c) Mobile App **d) Both a & b**

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define Computer Network.**

- A set of computers connected together for the purpose of sharing resources is called as computer network.

**2. Define Internet.**

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

**3. What are the common uses of computer network?**

The common uses of computer network are

- Communication
- Resource sharing
- Data (or) software sharing
- Money saving

**4. List out some features of mobile network.**

- Less consumption of power is used by mobile devices
- Huge capacity than a large transmitter, at single frequency .
- Covering large area than a single transmitter.

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

| Wired networks | Wireless networks |
|---|---|
| A Wired network system connected with network cable . | A Wireless network is connecting devices like tablets(tab), indoor cameras and E-readers, etc., without cables (WiFi). |
| **Example:** Speakers, CCTV, Printers, etc | **Example:** Tablets, Indoor, Cameras, etc |

## Section-C

**Answer the following questions** **(3 Marks)**

**1. Define ARPANET.**

- The Advanced Research Projects Agency Network (**ARPANET**) was an early packet-switching network and the first network to implement the TCP/IP protocol suite.

- First In 1969, four nodes of ARPANET were connected between four universities using the 50 Kbit/s 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 no geographical limits was in need

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

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

- **Artificial intelligence** (AI) is the ability of a computer program or a machine to think and learn.
- Artificial intelligence able to be a better predict traffic as it collects and analyzes data in real time.
- Artificial intelligence will help to maintain, manage, 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?**

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

## Section - D

**Answer the following questions:** **(5 Marks)**

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

**Computer Network:**

- A set of computers connected together for the purpose of sharing resources is called as computer network.

**Internet:**

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

| S. No | Period | Method | History |
|---|---|---|---|
| 1 | Late 1950 | SAGE (Semi – Automatic Ground Environment) | It was used at U.S Military Radar system. |
| 2 | 1960 | Packet switching | **Packet switching** was developed to **transfer the information** between computers and network |
| **3** | 1966 | WAN (Wide Area Network ) | WAN (Wide Area Network) has been published in the **area of time sharing.** |
| **4** | 1969-1970 | ARPANET **(**Advanced Research Projects Agency Network**)** | The **ARPANET** was an early **packet-switching network** and the **first network** to implement the **TCP/IP** protocol suite |
| **5** | 1973-1979 | Ethernet | "**Ethernet**: **Distributed Packet Switching** for Local Computer Networks" |
| **6** | 1976 | ARCNET | Data point corporation in which **token-passing network** was used first to **share the storage device** in 1976. |
| 7 | 1995 | NEW FIBRE OPTIC CABLES | Ethernet has ability of a quick compatible to support new fiber optic cable **speed**. |

**2. Explain the growth of the computer networking.**

- Computer network technology was developing over several years included Growth on popularity of cloud storage and cloud computing, downloading and buy digital licenses via Internet.
- Developments on mobile network infrastructure–both deployments of **4G and 3G networks** (older) that have allows the people to use in their developed areas.
- Even though **4G LTE** mobile network was **not reached** by many parts of world, the industry of telecommunication started on the development of their next generation **"5G" cellular communication Technology.**
- This **5G** intense to boost up the speed the mobile connections dramatically.
- It might be tested on laboratory on by prototype versions of some elements then it may be standard **5G.**
- **Artificial intelligence** (AI) is the ability of a computer program or a machine to think and learn.
- Artificial intelligence will help to maintain, manage, and protect it.

**3. Mention some uses of network at business, home, mobile, social application.**

**Networks in Business:**

- Internet conversations happen faster, Quick Decision making saves a lot of time, and also provides security by limiting user access in cloud computing.
- In business, Direct human interactions are reduced and working environment is also shrink because of Internet.
- Transfer of information across the Internet can be done in any type of business it might be large, small scale or commercial .

**Networks at Home:**

- Network at home is a **group of devices** such as computers, mobile, speakers, camera, game system, and printer that connect via network device(router/datacard) with each other.
- A **Wired network** system connected with network cable.
- A **Wireless network** is connecting devices like tablets(tab), indoor cameras and E-readers, etc., without cables (WiFi).

**Mobile Networks:**

- Mobile network is the network connecting devices **without cable (wireless).**
- Mobile computers, such as laptop, tablet, and hand held computers, were fastest growing segments.

**Social Application:**

- Very fast and easiest way to cover all the people, who they are connected in social network media.
- **For Example:** WhatsApp, Face book, twitter, blogs, pintrest, LinkedIn, classmates and so on.

**Usefulness of Social Networks:**

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

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# 11. NETWORK EXAMPLES AND PROTOCOLS

## Section – A

**Choose the best answer** **(1 Mark)**

1. The----------, “the Net,” is a worldwide system of computer networks

**a) Internet** b) mobile c) communication d) protocol

**2.** Which one of the following will be easy the way to uses Internet technology and the public telecommunication system to securely share business’s information with suppliers, vendors, partners and customers.

**a) Extranet** b) Intranet c) arpanet d) arcnet

3. Match the following and choose the correct answer

**i.** HTTP -The core protocol of the World Wide Web.

**ii.** FTP - enables a client to send and receive complete files from a server.

**iii.** SMTP - Provide e-mail services.

**iv.** DNS - Refer to other host computers by using names rather than numbers.

**a) i, ii, iii, iv** b) ii, iii, iv, i c) iii, iv, i, ii d) iv, iii, ii, i

4. Communication over ----------is be made up of voice, data, images and text messages.

a) Social media **b) mobile network** c) whatsapp d) software

5. Wi-Fi stands for----------

**a) Wireless Fidelity** b) wired fidelity c) wired optic fibre d) wireless optic fibre

6. A TCP/IP network with access restricted to members of an organization

a) LAN b) MAN c) WAN **d) Intranet**

**7.** RFID stands for ----------

a) Radio Free identification b) real Frequency identity

c) Radio Frequency indicators **d) Radio Frequency Identification.**

8. It guarantees the sending of data is successful and which checks error on operation at OSI layer is-------

a) Application layer b) Network layer **c) Transport Layer** d) Physical layer

9. Which one of the following will secure data on transmissions

**a) HTTPS** b) HTTP c) FTP d) SMTP

10. ---------- provides e-mail service

a) DNS b) TCP c) FTP **d) SMTP**

11. ---------- refer to other host computers by using names rather than numbers.

**a) DNS** b) TCP c) FTP d) SMTP

12. TCP/IP is a combination of two protocols:

**i.** Transmission Control Protocol (TCP) ii. Internet Protocol (IP)

**iii.** Selection Protocol (SP) iv. Captial Protocol (CP)

**a) i, ii** b) i, iii c) iii, iv d) ii, iii

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## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define Intranet.**

- It is a private network using Internet technology to share part of business information with supplier's partners and customers.
- It may consist of many interlinked local area networks.

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

- Mobile networking assign to the technology that can **support data / voice,** network connectivity using via radio transmission solution, wireless.
- Wireless communications use both data and voices are being transmitted over both circuit via switched networks and packet-switched networks.

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

- Mobility.
- Provides connection to Internet.
- Flexibility of LAN.
- Low cost, high benifts.

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

Two types of RFID Systems:
1. Active RFID system: These systems used for larger distances and to track high value goods like vehicles.
2. Passive RFID system: They are used for shorter range transmission.

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

**HTTP :** Hypertext Transfer Protocol

**HTTPS :** Hyper Text Transfer Protocol Secure

**FTP :** File Transfer Protocol

## Section-C

**Answer the following questions** **(3 Marks)**

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

| Type | Definition | Example |
|---|---|---|
| **Internet** | A global network, public TCP/IP network used by over a billion people all over the world. | Sending email to a friend |

| | | |
|---|---|---|
| **Intranet** | A TCP/IP network with access restricted to members of an organization. | Accessing your record in the employee personnel file |
| **Extranet** | TCP/IP network with restricted access to members. | Checking availability of inventory from an outside supplier |

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

- **RFID component** on the tags has two parts:
- A **microchip** which stores and processes the information, and the **antenna** to receive and transmit a signal.
- The **Tag** replies the information from its memory bank.
- The **Reader** will transmit to read the result to RFID computer program.

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

**HTTP** :

- A protocol used between a web client and a web server protects non *secure* data transmissions.

**HTTPS:**

- A protocol used between a web client and a web server permits *secure* data transmissions.

**FTP** :

- Used between computers for sending and receiving data.

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

- **Network Access Layer** - Concerned with building packets.
- **Internet Layer** - Describes how packets are to be delivered.
- **Transport Layer** - Ensure the proper transmission of data.
- **Application Layer** - Application network processes.

**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

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## Section - D

**Answer the following questions:** **(5 Marks)**

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

**INTERNET:**

- A network of networks where the users at any one computer can, if they have permission, get information from any other computer.
- The Internet is a network of global connections – comprising private, public, business, academic and government networks – linked by guided, wireless and fiber-optic technologies.
- It was perceived by the Advanced Research Projects Agency (ARPA) of the U.S. government in 1969 and was first recognized as the ARPANet.
- **Example:** Sending email to a friend ,Download programs and files, Social media, E-Mail

**INTRANET:**

- It is a private network within an enterprise to share company data and computing resources between the employees.
- It may consist of many interlinked local area networks.
- It includes connections through one or more gateway (connects two networks using different protocols together known as protocol convertor) computers to outside Internet.
- **Example:** Sharing of company policies/rules and regulations, Access employee database, Distribution of circulars/Office Orders

**EXTRANET:**

- It is a private network that uses Internet technology and the public telecommunication system to securely share business's information with suppliers, vendors, partners, customers, or other businesses.
- **Example:** Customer communications, Online education/ training, Account status enquiry.

**2. Discuss about OSI model with its layers.**

- Open System Interconnection (OSI)model describes the standards for the inter-computer communication.
- OSI model enables network protocols along with software and systems to be developed based on general set of guidelines.

**OSI Layers:**

**1. Physical Layer:**

- This is the 1st layer, it defines the electrical and physical specifications for devices.

**2. Data Link Layer:**

- It is the 2nd layer and it guarantees that the data transmitted are free of errors.

**3. Network Layer:**

- It is the 3rd layer determining the path of the data packets is found using **IP Addressing**.

**4. Transport Layer:**

- It is the 4th layer that guarantees the transportation/sending of data is successful.
- It includes the error checking operation.

**5. Session Layer:**

- It controls dialogues between computers .

**6. Presentation Layer:**

- Encryption and decryption protocols occur in this layer such as, Secure Socket Layer (SSL).

**7. Application Layer:**

- It is the 7th layer, which acts as the user interface platform comprising of software within the system.

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

| Sl.No | OSI Reference Model | TCP/IP Model |
|---|---|---|
| **1.** | **Open System Interconnection (OSI)** | **Transmission Control Protocol (TCP/IP)** |
| **2.** | **OSI** describes the standards for the inter-computer communication. | **TCP/IP** is a set of protocols which governs communications among all computers on the Internet. |
| **3.** | OSI has **Seven layers** | TCP/IP has **Four layers** |
| **4.** | It is a theoretical model which is used for computing system. | It is a client server model used for transmission of data over the internet. |
| **5.** | Develeloped by ISO**(International Standard Organization)** | Developed by **(Department of Defense)** |
| **6.** | OSI follows a **vertical approach**. | TCP/IP follow a **horizontal approach**. |
| **7.** | OSI is **protocol independent.** | TCP/IP is **protocol dependent.** |

**4. Explain about the development, merits and demerits in Mobile networks.**

**Development of Mobile Networks:**

The generations of mobile networks are as follows.

- First Generation(1G) 1981- NMT launch
- Second Generation(2G) 1991-GSM Launch
- Second to Third Generation Bridge (2.5)2000 – GPRS launch
- Third Generation( 3G) 2003- UK 3G launch
- Fourth Generation (4 G) 2007
- Fifth Generation (5G) 2019+

**Merits of Mobile Networks:**

- It provides both voice/data services.
- It connects both fixed and wireless telephone users.
- It is used in areas where cables cannot be laid out due to its wireless nature.
- It is easy to maintain.
- It is easy to upgrade the equipments.

- The mobile and fixed subscribers are connected immediately with cellular network as soon as mobile phones are switched on.
- All the handshake signals between mobile and base station are automatically exchanged.

**Demerits of Mobile Networks:**

- Cost
- Vulnerable to Security risks
- Additional training is needed to use new technology.
- Cyber Crime.

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# 12. DNS (DOMAIN NAME SYSTEM)

**Section – A**

**Choose the best answer** **(1 Mark)**

**1.** Which of the following is used to maintain all the directory of domain names?
**a) Domain name system** b) Domain name space
c) Name space d) IP address

**2.** Which of the following notation is used to denote IPv4 addresses?
a) Binary b) Dotted-decimal c) Hexadecimal **d) a and b**

**3.** How many bits are used in the IPv6 addresses?
a) 32 b) 64 **c) 128** d) 16

**4.** Expansion of URL is
a) Uniform Resource Location b) Universal Resource Location
**c) Uniform Resource Locator** d) Universal Resource Locator

**5.** How many types are available in Relative URL?
**a) 2** b) 3 c) 4 d) 5

**6.** Maximum characters used in the label of a node?
a) 255 b) 128 **c) 63** d) 32

**7.** In domain name, sequence of labels are separated by
a) ; **b) .(dot)** c) : d) NULL

**8.** Pick the odd one out from the following.
a) node b) label c) domain **d) server**

**9.** Which of the following initiates the mapping of domain name to IP address?
a) Zone b) Domain c) Resolver **d) Name servers**

**10.** Which is the contiguous area up to which the server has access?
**a) Zone** b) Domain c) Resolver d) Name servers

**11.** ISP stands for

a) International Service provider **b) Internet Service Provider**

c) Internet service Protocol d) Index service provider

**12.** TLD stands for

a) Top Level Data b) Top Logical Domain c) Term Level Data **d) Top Level Domain**

**13.** Which of the following statements are true?

**i)** Domains name is a part of URL. **ii)** URL made up of four parts

**iii)** The relative URL is a part of Absolute URL **iv)** URL doesn't contain any protocol

a) i & ii **b) ii** c) i, ii & iii d) i, ii & iv

**14. A**ssertion (A) : The number of addresses used in IPv6 addressing method is 128 .

Reason (R) : IPv6 address is a 128 bit unique address.

a) A is true and R is false.

**b) A is false and R is true.**

c) Both A and R are correct and R is the correct explanation of A.

d) Both A and R are correct and R is not the correct explanation of A.

**15.** Match the following

**a.** domain - 1. Progress that initiates translation

**b.** zone - 2. contains database of domain names

**c.** name server - 3. single node

**d.** resolver - 4. contiguous nodes

a. 1432 **b.3421** c. 3214 d. 3412

## Section-B

**Answer the following questions** **(2 Marks)**

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

| Domain Name | Meaning |
|---|---|
| com | Commercial Organisation |
| edu | Educational Institutions |
| gov | Government (US) |
| mil | Military groups |

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

- Internet Protocol (IP) address is simply the logical address in the network layer.
- IP address is also used to uniquely identify a computer over the network.

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

- IPv4 - IPv4 address is a 32-bit unique address given to a computer system.
- IPv6 - IPv6 address is a 128-bit unique address given to a computer system.

**4. What is an URL?**

- URL **(Uniform Resource Locator)** is the address of a document on the Internet.
- URL is made up of four parts- protocols, hostname, folder name and file name.

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

- https://www.google.com/
- https://www.yahoo.com/
- https://www.rediff.com/
- https://www.facebook.com/

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

- URL is divided into two types:
- **Absolute URL** - Absolute URL is the complete address of a document on the Internet.
- **Relative URL** - Relative URL is the partial address of a document on the Internet.

**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?**

- **Zone** is the contiguous part up to which the server has access.
- The domain assigned for the server does not divide into further sub domains then zone is same as domain.

**9. What is a resolver?**

- The **resolver** is 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?**

- The DNS hierarchy is comprised of the following elements:

1) Root Level
2) Top Level Domains
3) Second Level Domains
4) Sub-Domain
5) Host

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

| Domain | | Purpose |
|---|---|---|
| com | - | Commercial organizations |
| edu | - | Educational institutions |
| gov | - | Government institutions |
| mil | - | Military groups |

## Section-C

**Answer the following questions** **(3 Marks)**

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

- Domain Name System (DNS) maintains all the directory of domain names and help us to access the websites using the domain names.
- It translates the domain name into IP address.
- The three important components of the Domain Name System are Namespace, Name server and Zone.

**2. Differentiate IPv4 and IPv6.**

| IPv4 | IPv6 |
|---|---|
| IPv4 address is a **32-bit** unique address given to a computer system. | IPv6 address is a **128-bit** unique address given to a computer system. |

| | |
|---|---|
| The number of addresses that can be formed in IPv4 is $2^{32}$. | The number of addresses that can be formed in IPv6 is $2^{128}$. |
| IP address represented by,<br>● Binary notation<br>● Dotted-decimal notation | IP address represented by, 4-digit Hexadecimal numbers separated by colon symbols. |

**3. Differentiate Domain name and URL.**

| Domain Name | URL |
|---|---|
| Domain Name is a symbolic name associated with an IP address | URL (Uniform Resource Locator) is the address of a document on the Internet. |
| Domain name is the sequence of labels separated by dot (.). | URL is made up four parts–protocols, hostname, folder name and file name. |
| **Example:** challenger.atc.fhda.edu. | **Example:** http://quora.com/answer |

**4. What are the differences between Absolute URL and Relative URL?**

| Absolute URL | Relative URL |
|---|---|
| Absolute URL is the complete address of a document on the Internet. | Relative URL is the partial address of a document on the Internet. |
| Absolute URL contains all the information that are required to find the files on the Internet. | Relative URL contains only file name or file name with folder name. |
| All the four parts is very important in absolute URL. | Relative URL is used when the file is on the same server related to original document. |

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

- Domain name is the sequence of labels, which are separated by dot (.).
- The domain name is always read from the lower level to higher level i.e., from the leaf node to root node.
- Since the root node always represent NULL string, all the domain name ending with dot.

**6. Differentiate web address and URL**

| WEB ADDRESS | URL |
|---|---|
| **Web Address** more commonly defines a unique name that helps people remember a URL. | **URL** (Uniform Resource Locator) is the address of a document on the Internet. |
| It is a unique string of letters or characters that identify your specific place on the internet. | URL is made up four parts–protocols, hostname, folder name and file name. |

## Section - D

**Answer the following questions:** **(5 Marks)**

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

- Domain Name System (DNS) maintains all the directory of domain names and help us to access the websites using the domain names.
- It translates the domain name into IP address.

**DNS Components:**

- There are three important components in the Domain Name System.
- They are,
  - Namespace
  - Name server
  - Zone

**1) NAME SPACE:**

- The domain names must be very unique and appropriate.
- The names should be selected from a namespace.
- The name space can be organized in two ways,
  - Flat name space
  - Hierarchical name space

**2) 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.
- Large number of domain names are saved on servers and used in the hierarchical manner.

**3) ZONE:**

- The entire name space is divided into many different zones.
- It is the area up to which the server has access.
- 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.
- Every zone has the server which contains a database called zone file.
- There are two copies of zone files available, Master file and slave file.

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

- Internet Protocol (IP) address is simply the logical address in the network layer.
- IP address is also used to uniquely identify a computer over the network.
- Due to increase in the number of system in a network there is a need of more addresses which lead to two addressing methods i.e., IPv4 and IPv6.

**IPv4 Address:**

- IPv4 address is a 32-bit unique address given to a computer system.
- No two systems can have same IP address.
- If the network has p connections then ' p' addresses should be there.
- An address space is the total number of addresses that can be made by that protocol.
- It is determined by the number of bits that the protocol use.
- If the protocol uses 'n' bits then the address space of that protocol would be '$2^n$ ,addresses can be
- formed.
- So, the number of addresses that can be formed in IPv4 is $2^{32}$.
- There are two ways to represent the IP address,
  - **Binary notation**
  - **Dotted-decimal notation**

**IPv6 Address:**

- IPv6 address is a 128-bit unique address given to a computer system.
- The number of addresses that can be formed in IPv6 is 2128.
- In IPv6 address, the 128 bits are divided into eight 16-bits blocks.
- Each block is then changed into 4-digit Hexadecimal numbers separated by colon symbols.
- E.g. 2001:0000:32313:DFE1:0063:0000:0000: FEFB.

**3. Explain about the name server?**

**NAME SERVERS:**

- **Name servers** store the data and provide it to clients when queried by them.
- **Name Servers** are programs that run on a physical system and store all the zone data.
- **Inverse Name Server** in the Domain Name System (DNS) 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 domain names, so plenty of servers are used in the hierarchical manner.
- Name servers do the important task of searching the domain names.
- While searching, Local Name server (provided by ISP) ask the different name servers until one of them find out your answer.

- At last it returns IP address for that domain name.
- Your computer can now connect to the requested webpage stored on the web server.

**TYPES OF NAME SERVERS:**

- Root Name Server:
- Primary/Master Name Server:
- Secondary/Slave Name Server:

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

**DOMAIN NAME SPACE:**

- **Domain name space** was designed to achieve **hierarchical name space.**
- In this, the names are represented as a tree like structure with **root element on the top** and this tree can have a maximum of **128 levels** starting from root element taking the **level 0 to level 127**.
- In domain name space where the root element is present at the top most level i.e., level 0.
- The root element always represents the NULL string (empty string).
- The next level to the root element is node (children of root element).
- Each node in the tree has a **label** and a **domain name**.

**Label:**

- Labels are the names given to domains.
- It is a string which can have maximum of 63 characters.
- Each node in that level should have different labels thereby assuring the individuality of the domain name.
- **Domain** is a sub tree in domain name 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** i.e., from the leaf node to root node.
- Since the root node always represent **NULL string**, all the domain name ending with **dot.**

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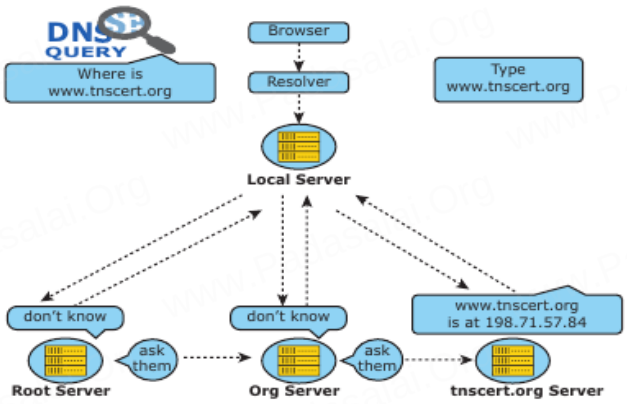
**5. Explain how the DNS is working.**

- When the user enters the URL in the browser, the system first checks its DNS cache for the corresponding IP address.




**Workflow of DNS**

- If the IP address is found in the cache then the information is retrieved from cache.
- If not, then the system needs to perform DNS query i.e., 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.
- If not, then the query is passed to next domain server i.e., TLD (Top Level Domain) which reviews the request and direct the query to name servers associated with that specific domain.
- Until the query is solved it is passed to next level domains.
- At last the mapping and the record are returned to the resolver who checks whether the returned value is a record or an error.
- Then the resolver returns the record back to the computer browser which is then viewed by the user.

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**********

# 13. NETWORK CABLING

## Section – A

**Choose the best answer** **(1 Mark)**

1. ARPANET stands for
   a) American Research Project Agency Network
   b) Advanced Research Project AreaNetwork
   **c) Advanced Research ProjectAgency Network**
   d) American Research Programs And Network

2. WWW was invented by
**a) Tim Berners Lee** b) Charles Babbage c) Blaise Pascal d) John Napier

3. Which cable is used in cable TV to connect with setup box?
a) UTP cable b) Fibre optics **c) Coaxial cable** d) USB cable

4. Expansion of UTP is
a) Uninterrupted Twisted Pair b) Uninterrupted Twisted Protocol
**c) Unshielded Twisted Pair** d) Universal Twisted Protocol

5. Which medium is used in the optical fibre cables to transmit data?
a) Microwave b) infra red **c) light** d) sound

6. Which of the following is a small peripheral device with a sim slot to connect the computers to Internet?
a) USB **b) Dongles** c) Memory card d) Mobiles

7. Which connector is used in the Ethernet cables?
a) RJ11 b) RJ21 c) RJ61 **d) RJ45**

8. Which of the following connector is called as champ connector?
a) RJ11 **b) RJ21** c) RJ61 d) RJ45

9. How many pins are used in RJ45 cables?
**a) 8** b) 6 c) 50 d) 25

10. Which wiring standard is used for connecting two computers directly?
a) straight Through wiring **b) Cross Over wiring**
c) Rollover wiring d) None

11. Pick the odd one out from the following cables
a) roll over b) cross over **c) null modem** d) straight through

12. **Match the following:**

| | | |
|---|---|---|
| 1. Ethernet | - | Port |
| 2. RJ45 connector | - | Ethernet |
| 3. RJ45 jack | - | Plug |
| 4. RJ45 cable | - | 802.3 |

a.1, 2, 4, 3 b. 4, 1, 3, 2 **c. 4, 3, 1, 2** d. 4, 2, 1, 3

## Section-B

**Answer the following questions** **(2 Marks)**

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

- **Twisted Pair Cable** is type of cable with two or more insulated wires twisted together.
- There are two types of twisted pair cables,
  - Unshielded Twisted Pair (UTP)
  - Shielded Twisted pair (STP).

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

- The Universal Serial Bus are used to connect keyboard, mouse and other peripheral devices.
- Micro USB is a miniaturized version of the USB used for connecting mobile devices.

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

**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.
- The crimping tool will puncture the connector and makes the wire set in the connector.

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

- There are two types of twisted pair cables,
  - Unshielded Twisted Pair (UTP)
  - Shielded Twisted pair (STP).

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

- The RJ-21 connector has 50 pins with 25 pins at one end and 25 pins at the other end.
- RJ-21connector is also called as champ connector or Amphenol connector.

## Section-C

**Answer the following questions** **(3 Marks)**

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

- Crossover cable is used to connect two computers or Ethernet devices directly together without a hub.
- The Null modem Cables are the example of the 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.
- In RJ45 the “RJ” stands for the Registered Jack and the “45” simply refers to the number of interface standard in the cable.
- It has eight small pins inside to connect eight small wires in the patch cable.

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

| Serial Ports | Parallel Ports |
|---|---|
| • The serial port will send 1 bit at one time. | • The parallel port will send 8 bit at one time. |
| • Use 9 pins and 2 wires | • Use 25 pins and 8 wires |
| • Data transmission is slower than parallel port. | • Data transmission is faster than serial port. |
| • It is used by flat screen monitors, GPS receivers, bar code scanners and satellite phones or modems. | • Devices that communicate with a parallel port are zip drives, scanners, joysticks, external hard drives and webcams. |

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

- The Null modem Cables are the example of the crossover cables.
- This cable is used to join two PCs or two network devices of the same type.
- This cable works at a speed of 10 gbps and more.

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

The main components are used in the Ethernet cabling are,

**1.** Patch Cable (Twisted pair)

**2.** RJ45 Connector

**3.** Ethernet Ports

**4.** Crimping Tool

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

- There are two types of fibre optic cables are available are,
    1. Single-mode (100BaseBx)
    2. Multimode (100BaseSX).
- **Single-mode cables** are used for long distance transmission and at a high cost.
- **Multimode cables** are used for short distance transmission at a very low cost.
-

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## Section - D

**Answer the following questions:** **(5 Marks)**

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

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

**Types of Registered Jacks:**

**1) RJ-11:**

- This registered jack is mainly used in telephone and landlines.
- When we look the pin details of the RJ-11, there are **6 pin** where,
  - The two pins give the **transmission configuration**,
  - The two pins give the **receiver configuration** and
  - The other two pins will be kept for reserved.
- The two pin will have the **positive terminal** and the **negative terminal**.

**2) 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.
- The **RJ-61** will have **8 pins** and use the twisted pair cable with a modular 8 connection.

**3) RJ-21:**

- The 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 or Amphenol connector**.

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

- There are three types of wiring techniques to construct the Ethernet cable.
- It is also known as color coding techniques.
- They are,
  1. Straight-Through Wiring
  2. Cross-over Wiring

3. Roll-over Wiring

**1. Straight-Through Wiring:**

- In general, the Ethernet cables used for Ethernet connections are **"Straight-Through Cables".**
- These cable wires are in the **same sequence at both ends** of the cable, which means that pin 1 of the plug on one end is connected to pin 1 of the plug on the other end.
- The straight through wiring cables are mostly used for connecting **PC / NIC card to a hub**.

**2. Cross-over Wiring:**

- Crossover cable is used to connect two computers or Ethernet devices directly together without a hub.
- The Null modem Cables are the example of the crossover cables.

**3. Roll-over Wiring:**

- Rollover cable is a type of **null-modem cable** used to connect a device console port to make programming changes to the device.
- The roll over wiring have opposite pin arrangements, all the cables are rolled over to different arrangements.
- In the rollover cable, the coloured wires are reversed on other end.
- The 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 about RJ45 connector.**

**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 Ethernet cables are sometime called as **RJ45 cables**.
- In RJ45 the **"RJ"** stands for the **"Registered Jack"** and the **"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.
- Since it has 8-position, 8-contact (8P8C) modular plug.
- It is also known as **8P8C connector**.
- These plugs (connector) are then inserted into Ethernet port of the network card.

## WIRING SCHEMES AND COLOUR CODES OF THE CONNECTOR

- The RJ45 connector has **eight small jack inside to connect eight small wires** of the patch cable.
- The eight cables are in **eight different colors**.
- Wiring schemes specifies how the wires to be connected with RJ45 connector.
- There are **two wiring schemes** available to terminate the twisted-pair cable on each end, which are **T-568A and T-568B**.
- Although four pairs of wires are available in the cable,
  - Ethernet uses only two pairs: Orange and Green.
  - The other two colors (blue and brown) can be used ISDN or phone connections.

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

- Ethernet cabling is the process of connecting the computers with other devices using Ethernet cables.
- The main components used in the Ethernet cabling components are,

### 1) PATCH CABLE (TWISTED PAIR):

- These Cables are generally made up of 8 wires in different colors.
- Four of them are solid colours, and the others are striped.
- The eight colors are white green, green, white orange, blue, white blue, orange, white brown and brown.

### 2) 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 Ethernet cables are sometime called as **RJ45 cables**.
- In RJ45 the **"RJ"** stands for the **"Registered Jack"** and the **"45"** simply refers to the **number of interface** standard in the cable.

### 3) 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 port** is an opening which is a part of an Ethernet card.

**4) CRIMPING TOOL:**

- **Crimping** is the process of joining two or more pieces of metal or wire by deforming one or both of them to hold each other.
- The crimping tool is a physical tool which is used to connect the patch wire and the Ethernet connector.

**5. Explain the types of network cables**

**TYPES OF NETWORK CABLES**

**1. Coaxial Cables:**

- **Coaxial Cables** is used to connect the television sets to home antennas.
- This cable is used to transfer the information in 10 mbps.
- The cable is divided into thinnet and thicknet cables.
- These cables have a copper wire inside and insulation is covered on the top of the copper wire to provide protection to the cable.

**2. Twisted Pair Cables:**

- **Twisted Pair Cable** is type of cable with two or more insulated wires twisted together.
- It has 8 wires which are twisted to ignore electromagnetic interference.
- It started with the speed of 10 mbps (10BASE-T cable is used) and improved the speed to 100 mbps (100BASE-TX) and finally the cable improved more made to 10 gbps (10GBASE-T).
- There are two types of twisted pair cables,
  - Unshielded Twisted Pair (UTP)
  - Shielded Twisted pair (STP).

**3. Fiber Optics:**

- **Fibre Optic Cable** is strands of glass and pulse of light is used to send the information.
- The optic cable uses light to transmit the information from one place to another.
- These cables are placed in deep underground to avoid any damage to the cables.
- They are mainly used in Wide Area Network (WAN).
- There are two types of fibre optic cables are available are
  - Single-mode (100BaseBx)
  - Multimode (100BaseSX)

**4. USB Cables:**

- The **Universal Serial Bus** are used to connect keyboard, mouse and other peripheral devices.

**5. Serial and Parallel cables:**

- The **Serial and Parallel interface cables** are used to connect the Internet to the system.
- The system will have both serial port and parallel port.

**6. Ethernet Cables:**

- **Ethernet cable** is the most common type of network cable mainly used for connecting the computers or devices at home or office.

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# 14. OPEN SOURCE CONCEPTS

## Section – A

**Choose the best answer** **(1 Mark)**

**1.** If the source code of a software is freely accessible by the public, then it is known as

a) Freeware b) Firmware **c) Open source** d) Public source

**2.** Which of the following is a software program that replicates the functioning of a computer network?

a) Network software **b) Network simulation** c) Network testing d) Network calculator

**3.** Which of the following can document every incident that happened in the simulation and are used for examination?

a) Net Exam b) Network hardware **c) Trace file** d) Net document

**4.** Which is an example of network simulator?

a) simulator b) TCL **c) Ns2** d) C++

**5.** Fill in the blanks : NS2 comprises of_____key languages?

a) 13 b) 3 **c) 2** d) 4

**6.** Choose the Correct Pair from the following to build NS2

a) UNIX & TCL b) UNIX & a. C++ **c) C++ & OTcl** d) C++ & NS2

**7.** Which of the following is not a network simulation software?

a) Ns2 b) OPNET c) SSFNet **d) C++**

**8.** Which of the following is a open source network monitoring software?

a) C++ b) OPNET **c) Open NMS** d) OMNet++

**9.** Open NMS was released in……

**a) 1999** b) 2000 c) 2003 d) 2004

**10.** OpenNMS Group was created by…….

a) Balog b) Matt Brozowski c) David Hustace **d) All of them**

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Explain the History of open source software.**

- In 1984 Richard Stallman formed **Free Software Foundation (FSF).**

- In 1991 Linus Torvalds developed **Linux**.


- In 1994 **Red Hat** (Commercial Linux) company founded.


- In 1998 **open Source initiative (OSI)** was formed.
- 73% of free software register under GPL Licence.

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

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

**3. What is trace file?**

- A significant output of simulation is the trace files.
- Trace files can document every incident that happened in the simulation and are used for examination.

**4. Write short notes on NS2.**

- **NS2 is the abbreviation of NETWORK SIMULATOR version 2**.
- It was considered explicitly for exploration in network communication and event driven open-source simulator in computer.
- OTCL and c++ used to create and run NS2

**5. Explain NRCFOSS.**

- National Resource Centre for Free and Open Source Software an Institution of Government of India.
- To help in development of FOSS in India.

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

- Open NMS (Network Management System) is a free and open-source initiative grade network monitoring and network management platform.
- It is established and maintained by a community of users , developers and by the Open NMS Group.

## Section-C

**Answer the following questions** **(3 Marks)**

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

- We can select and use any Open Source Software that suits our needs.
- 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.

**2. Explain Free software.**

- Freeware usually refers to proprietary software that users can download at no cost, but whose source code cannot be changed.
- It enhance the ability of users to use and enjoy software as they see fit.

**3. List out the Popular open source software.**

NS2 , OPEN NMS, Ubuntu , MySQL, PDF Creator, Open Office, 7zip GNUCASH, GIMP, BLENDER, AUDACITY, VLC, MOZILA FIREFOX, MAGENTO, ANDROID, PHP.

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

- The computers used by individuals or business organisations may have spy hardwares of rivals.
- Open source hardware technology helps in such threats.

**Open Source Hardware:**

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

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

**Open NMS has three main functional areas:**

- Service monitoring
- Data Gathering
- Event management and notifications.

**6. Explain Types of Organisations related to Open Source.**

**Organizations related to Open Source:**

- Apache Software Foundation
- The Document Foundation
- The Eclipse Foundation
- Free Software Foundation

## Section - D

**Answer the following questions:** **(5 Marks)**

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

| Open Source Software | Proprietary software |
|---|---|
| • It refers to the software that is developed and tested through open collaboration. | • It refers to the software that is solely owned by the individual or the organization that developed it. |
| • Anyone with the academic knowledge can access, inspect, modify and redistribute the source code. | • Only the owner or publisher who holds the legal property rights of the source code can access it. |
| • The project is managed by an open source community of developers and programmers. | • The project is managed by a closed group of individuals or team that developed it. |
| • They are not aimed at unskilled users outside of the programming community. | • They are focused on a limited market of both skilled and unskilled end users. |
| • It provides better flexibility which means more freedom which encourages innovation. | • There is a very limited scope of innovation with the restrictions and all. |
| • **Examples:** Android, Firefox, LibreOffice, Ubuntu, Free BSD, Drupal,GNOME, etc. | • **Examples:** Windows, macOS, iTunes, Google earth, adobe Flash Player, etc. |

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

**Benefits of Open Source software:**

- We can select and use any software that suits our needs.
- The softwares 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.
- The coding in open source softwares are being groomed by many enthusiastical members of the group.

- We can add the most required features in the software by making changes to the open source softwares.
- Many open source software are very user friendly.

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

- An open-source licensing allows the source code of a project to be open or transparent, utilized by third parties, or changed or manipulated by members of a developer community.

**Types of open source license:**

**Apache License 2.0:**

- The 2.0 version of the Apache License, provides a reliable and long-lived software products.

**BSD 3-Clause "New" or "Revised" license**

- The **BSD license** is a simple **license** that merely requires that all code retain the **BSD license** notice if redistributed in source code format, or reproduce the notice if redistributed in binary format.

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COMPUTER APPLICATION

# 15. E-COMMERCE

## Section – A

**Choose the best answer** **(1 Mark)**

1. A company can be called E-Business if
   a) it has many branches across the world.
   **b) it conduct business electronically over the Internet.**
   c) it sells commodities to a foreign country.
   d) it has many employees.
2. Which of the following is not a tangible goods?
   a) Mobile **b) Mobile Apps** c) Medicine d) Flower bouquet
3. SME stands for
   **a) Small and medium sized enterprises** b) Simple and medium enterprises
   c) Sound messaging enterprises d) Short messaging enterprises
4. The dotcom phenomenon deals with_____
   a) Textile industries b) Mobile phone companies
   **c) Internet based companies** d) All the above
5. Which of the following is not correctly matched
   **a) The First Wave of Electronic Commerce: 1985 -1990**
   b) The Second Wave of Electronic Commerce: 2004 – 2009
   c) The Third Wave of Electronic Commerce: 2010 – Present
   d) Dotcom burst: 2000 – 2002
6. Assertion (A): The websites of first wave dotcom companies were only in English
   Reason (R): The dotcom companies of first wave are mostly American companies.
   **a) Both (A) and (R) are correct and (R) is the correct explanation of (A)**
   b) Both (A) and (R) are correct, but (R) is not the correct explanation of (A)
   c) (A) is true and (R) is false d) (A) is false and (R) is true
7. Off-shoring means
   a) Work outsourced to a branch of its own company
   b) Work outsourced to new employees
   c) Work outsourced to a third party locally
   **d) Work outsourced to a third party outside its own country**
8. G2G systems are classified into
   **a) Internal facing and external facing** b) Internet facing and Extranet facing
   c) Internal flag and external flag d) Internet flag and Extranet flag
9. ____ host the e-books on their websites.

a) Bulk-buying sites b) Community sites **c) Digital publishing sites** d) Licensing sites

10. Which of the following is not a characteristics of E-Commerce

a) Products cannot be inspected physically before purchase.

**b) Goods are delivered instantly.**

c) Resource focus supply side

d) Scope of business is global.

## Section-B

**Answer the following questions** **(2 Marks)**

**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-Business | E-Commerce |
|---|---|
| • E-Business entirely depends on the Internet for its every intra-company and inter-company activities. | • E-Commerce is commercial transaction through Internet. |
| • E-Business is a superset of E-Commerce. | • E-Commerce is a subset of E-Business. |

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

| Tangible form | Electronic form |
|---|---|
| • Tangible form – e.g. a digital camera purchased by a consumer from an online shopping website which might be delivered at the requested address. | • Electronic form – e.g. a music album or software downloaded from a site which might be delivered in electronic form. |

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

**Dotcom Bubble:**

- The Dotcom Bubble was a historic excessive growth (excessive assumption) of economy that occurred roughly between 1995 and 2000.
- It was also a period of extreme growth in the usage and adaptation of the Internet as well.

**Dotcom Burst:**

- The Nasdaq-Composite stock market index, fell from 5046.86 to 1114.11.
- This is infamously, known as the Dotcom Crash or Dotcom Burst.

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

- Out-Sourcing is hiring third party service providers to handle business on behalf.
- If a company's work is hired to another company, it would be termed as out-sourcing.

## Section-C

**Answer the following questions** **(3 Marks)**

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

- Growth of E-Commerce is also related to the socio-technological changes.
- The more, the medium becomes deep rooted, the more are the users drawn towards it.
- Increase of users, increases the markets.
- The competition leads to innovation; innovation in turn drives the development of technology; technology facilitates E-Commerce's growth.

**2. 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.
- The term Web 3.0, summarize the various characteristics of the future Internet which include Artificial Intelligence, Semantic Web, Generic Database etc.

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

- In B2B E-Commerce, commercial transactions take place between **different business organizations**, through the Internet.
- **Example:**
- A cycle company may buy tyres from another company for their cycles.
- When compared to other models, the value per transaction in B2B transaction is high, because of bulk purchases.

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

- Name-your-price sites are just like normal retail sites.
- In contrast, the buyer negotiates with the retailer for a particular product or service.
- **Example:** https://in.hotels.com/ .

**5. 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 because, we do not have physical access to the product.
- Though Internet is an effective channel for visual and auditory information but not senses.
- But in online shopping, we would see only the pictures the seller had chosen for us.
- People are often much more comfortable in buying the generic goods rather than unique or complex things via the Internet.

## Section - D

**Answer the following questions:** **(5 Marks)**

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

- Electronic commerce and the information revolution brought about by the Internet likely go through a series of waves.

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

- The Dotcom bubble had attracted huge investments to first wave companies.
- As the Internet was mere read-only web (web 1.0) and network technology was in its beginning stage, the bandwidth and network security was very low.
- Only EDI and unstructured E-mail remained as a mode of information exchange between businesses.
- But the first wave companies enjoyed the first-move advantage and customers had left with no options.

**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, with sellers doing business in many countries and in many languages.
- Language translation and currency conversion were focused in the second wave websites.
- The second wave companies used their own internal funds and gradually expanded their E-Commerce opportunities.

**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-time and on-demand transactions.
- Not only the information is filtered by time, but also the geographic coordinates are used to screen the specific location-tailored information properly.
- The term Web 3.0, summarize the various characteristics of the future Internet which include Artificial Intelligence, Semantic Web, Generic Database etc.

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

**E-COMMERCE BUSINESS MODELS**

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)

**Business to Business (B2B)**

- In B2B E-Commerce, commercial transactions take place between different business organizations, through the Internet.
- For example, a cycle company may buy tyres from another company for their cycles.

**Business to Consumer (B2C)**

- In B2C E-Commerce, commercial transactions take place between business firms and their consumers.
- It is the direct trade between companies and end-consumers via the Internet.
- An example of B2C transaction is a book company selling books to customers.

**Consumer to Government (C2G)**

- Citizens as Consumers and Government engage in C2G E-Commerce.
- Here an individual consumer interacts with the Government.
- C2G models usually include income tax or house tax payments, fees for issuance of certificates or other documents.

**Government to Business (G2B)**

- G2B is closely related to B2G.
- G2B in E-Commerce refers to a business model where Government providing services or information to business organization.

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

**E-Commerce Revenue Models:**

**1. AUCTION SITE**

- It is a kind of website, that auctions items on the Internet and levies some commission from the sales.
- **Example:** https://www.ebay.com/

**2. BANNER ADVERTISEMENT SITE**

- It displays advertisements of other companies in its websites and thereby earns revenue.

**3. BULK-BUYING SITES**

- It collects 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.
- **Example:** https://www.alibaba.com/

**4. DIGITAL PUBLISHING SITES**

- It effectively host the e-books or magazines on the web.
- They make profits in a number of ways such as advertising, selling etc., **https://wordpress.org/**

**5. LICENSING SITES**

- It allows other websites to make use of their software.

**6. NAME-YOUR-PRICE SITES**

- They are just like normal retail sites.
- In contrast, the buyer negotiates with the retailer for a particular product or service.
- **Example:** https://in.hotels.com/

**4. 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. |
| • Customer can easily identify, authenticate and talk to the merchant. | • Neither customer nor merchant see the other. |
| • Physical stores are not feasible to be open all the time. | • It is always available on all time and all days of the year. |
| • Products can be inspected physically before purchase. | • Products can't be inspected physically before purchase. |
| • Scope of business is limited to particular area. | • Scope of business is global. Vendors can expand their business Worldwide. |

**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 and all the day i.e conduct business 24 x 7.
- Advanced Electronic communications systems allow messages to reach across the world instantaneously
- The Internet is too easy to 'shop around' and provides an opportunity to buy at reduced costs.
- Customers can shop from home or anywhere at their convenience.
- Payments can also be made through online.

**Disadvantages of E-Commerce**

- In E-Commerce we should wait between placing the order and having the product in hand.
- Returning goods through online is believed to be an area of difficulty because of time, refunds, exchange and postage.
- Privacy issues are serious in E-Commerce.
- Physical product disputes are a major disadvantage in E-Commerce.
- Delivery ambiguity.

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# 16. ELECTRONIC PAYMENT SYSTEMS

## Section – A

**Choose the best answer** **(1 Mark)**

1. Based on the monetary value e payment system can be classified into
   **a) Mirco and Macro** b) Micro and Nano
   c) Maximum and Minimum d) Maximum and Macro
2. Which of the following is not a category of micropayment?
   a) Buying a movie ticket b) Subscription to e journals
   **c) Buying a laptop** d) Paying for smartphone app
3. Assertion (A): Micro electronic payment systems support higher value payments.
   Reason (R): Expensive cryptographic operations are included in macro payments
   a) Both (A) and (R) are correct and (R) is the correct explanation of (A)
   b) Both (A) and (R) are correct, but (R) is not the correct explanation of (A)
   c) (A) is true and (R) is false
   **d) (A) is false and (R) is true**
4. Which of the following is correctly matched
   a) Credit Cards - pay before **b) Debit Cards - pay now**
   c) Stored Value Card - pay later d) Smart card – pay anytime
5. ECS stands for
   **a) Electronic Clearing Services** b) Electronic Cloning Services
   c) Electronic Clearing Station d) Electronic Cloning Station
6. Which of the following is not a Altcoin
   a) Litecoin b) Namecoin c) Ethereum **d) Bitcoin**
7. Which of the following is true about Virtual payment address (VPA)
   a) Customers can use their e-mail id as VPA b) VPA does not includes numbers
   **c) VPA is a unique ID** d) Multiple bank accounts cannot have single VPA
8. Pick the odd one in the credit card transaction
   a) card holder b) merchant **c) marketing manager** d) acquirer
9. Which of the following is true about debit card
   i. debit cards cannot be used in ATMs
   ii. debit cards cannot be used in online transactions
   iii. debit cards do not need bank accounts
   iv. debit cards and credit cards are identical in physical properties

   a) i, ii, iii b) ii, iii, iv c) iii alone **d) iv alone**

10. Match the following

| List A | List B |
|---|---|
| A1) First Digit | B1) Account number |
| A2) 9th to 15th Digit | B2) MII Code |
| A3) First 6 Digits | B3) BIN Code |
| A4) Last Digit | B4) Check digit |

| | A1 | A2 | A3 | A4 |
|---|---|---|---|---|
| a) | B4 | B3 | B2 | B1 |
| b) | B2 | B1 | B3 | B4 |
| c) | B2 | B3 | B4 | B1 |
| d) | B2 | B4 | B3 | B1 |

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define electronic payment system**

- An Electronic payment system is a financial arrangement that consists an intermediator to facilitate transfer of money-substitute between a payer and a receiver.

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

| MICRO ELECTRONIC PAYMENT | MACRO ELECTRONIC PAYMENT |
|---|---|
| • Online payment system designed to allow efficient and frequent payments of small amounts. | • Macro electronic payment systems support payments of higher value. |
| • The communication and computational costs are minimized here to keep transaction costs very low. | • The security requirements are more rigorous because of huge money transactions. |

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

- Hash chain based micro electronic payment systems.
- Hash collisions and hash sequences based micro electronic payment systems.
- Shared secrete keys based micro electronic payment systems.
- Probability based micro electronic payment systems.

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

- Electronic wallets (e-wallets) or electronic purses allow users to make electronic transactions quickly and securely over the Internet through smartphones or computers.

**5. What is a fork in cryptocurrency?**

- Many cryptocurrencies operate on the basis of the same source code, with few minor changes in parameters like time, date, distribution of blocks, number of coins, etc.

- These currencies are called as fork.
- In fork, both cryptocurrencies can share a common transaction history in block chain until the split.

## Section-C

**Answer the following questions** **(3 Marks)**

**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:**

- An e-commerce payment system facilitates the acceptance of electronic payment for online transaction.
- E-commerce payment systems have become increasingly popular due to the widespread use of internet-based shopping and banking.

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

| CREDIT CARD | DEBIT CARD |
|---|---|
| • Pay Later System | • Pay Now System |
| • The credit card issuer lends money to customer with an agreed interest. | • The debit card deducts the amount directly from customer's bank account. |
| • The bank account is not prerequisite for issuing a credit card. | • The bank account is must for issuing a debit card. |

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

- All Payment cards are usually plastic cards of size **85.60 mm width × 53.98 mm height**, rounded corners with a radius of **2.88 mm to 3.48 mm** and thickness of **0.76 mm**.
- These standards dimensions are maintained universally in accordance with ISO/IEC 7810#ID-1.

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

- Stored value card is a type of debit card that is pre-loaded with certain amount(value), with which a payment is made.

**TYPES OF STORED VALUE CARD:**

**1) Closed loop (single purpose)**

- Money is metaphorically stored on the card in the form of binary-coded data.

**2) Open loop (multipurpose)**

- Open loop cards can be used to make debit transaction at variety of retailers.

**5. Write a note on mining in cryptocurrency**

- The cryptocurrency 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.
- As a reward, they will receive new Bitcoins.

## Section - D

**Answer the following questions:** **(5 Marks)**

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

- Credit card is an electronic payment system enables the bearer to buy goods or services from a vendor, based on the cardholder's promise to the card issuer to payback the value later with an agreed interest.

**Key Players In Operations Of Credit Card**

**1. Bearer:**

- The holder of the credit card account who is responsible for payment of invoices in full (transactor) or a portion of the balance (revolver) the rest accrues interest and carried forward.

**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.
- The Company responsible for communicating the transaction between the acquirer and the credit card issuer.
- E.g. 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 in case of default and offer card-linked products such as insurance, additional cards and rewards plan.

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

- **Electronic Account transfer** include ECS (Electronic Clearing Services), EFT (Electronic funds transfers), Real Time Gross Settlement system (RTGS) etc.

**ECS (Electronic Clearing Services)**

- Electronic Clearing Service can be defined as repeated transfer of funds from one bank account to multiple bank accounts or vice versa using computer and Internet technology.

- Advantages of this system are bulk payments, guaranteed payments and no need to remember payment dates.
- ECS credit is used for making bulk payment of amounts.
- ECS debit is used for bulk collection of amounts.

**EFT (Electronic funds transfers)**

- Electronic Funds Transfer (EFT) is the "electronic transfer" of money over an online network.
- The amount sent from the sender's bank branch is credited to the receiver's bank branch on the same day in batches.
- EFT is a widely used method for moving funds from one account to another in B2B business models.

**Real Time Gross Settlement system (RTGS)**

- Real Time Gross Settlement system (RTGS) is a payment system particularly used for the settlement of transactions between financial institutions, especially banks.
- As name indicates, RTGS transactions are processed at the real time.
- RTGS payments are also called as push payments that are initiated ("triggered") by the payer.
- RTGS payments are generally large-value payments, i.e. high-volume transactions.

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

**a) Internet banking**

- Internet banking is a collective term for E-banking, online banking, virtual banking, direct banks, web banking and remote banking.
- Internet banking allows customers of a financial institution to conduct various financial transactions on a secure website operated by the banking institutions.
- This is a very fast and convenient way of performing any banking transactions.
- It enables customers of a bank to conduct a wide range of financial transactions through its website.
- In fact, it is like a branch exclusively operating of an individual customer.

**b) Mobile banking**

- Mobile banking is another form of net banking.
- The term mobile banking (also called m-banking) refers to the services provided by the bank to the customer to conduct banking transactions with the aid of mobile phones.
- These transactions include balance checking, account transfers, payments, purchases, etc.
- Transactions can be done at anytime and anywhere.
- The WAP protocol installed on a mobile phone helps the user have a permanent control over the account and remote management of his own finances.

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**4. What is cryptocurrency? Explain the same.**

- A cryptocurrency is a unique virtual (digital) 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.
- Cryptocurrency is also called as cryptocoins, e-cash, alternative currencies or virtual currencies and are classified as a subset of digital currencies.
- Cryptocurrency can be defined as distributed accounting system based on cryptography, storing information about the state of ownership in conventional units.

**Bitcoin**

- The term "cryptocurrency" began to be used after the appearance of the Bitcoin.
- Bitcoin was developed in 2009 and it is the most popular and the first decentralized cryptocurrency.

**Altcoins**

- Altcoins is the collective name for all cryptocurrencies that appeared after Bitcoin.
- The early Altcoins Litecoin and Namecoin appeared in 2011.

**Blockchain**

- Blockchains are an open distributed book that records transactions of cryptocurrencies between any two parties in an efficient and verifiable manner.

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

- **Unified Payments Interface (UPI)** is a real-time payment system developed by National Payments Corporation of India (NCPI) to facilitate inter-bank transactions.
- It is simple, secure and instant payment facility.
- This interface is regulated by the Reserve Bank of India and used for transferring funds instantly between two bank accounts through mobile (platform) devices. http://www.npci.org.in/
- UPI withdraws and deposits funds directly from the bank account whenever a transaction is requested.
- It also provides the "peer to peer" collect request which can be scheduled and paid as per requirement and convenience.
- UPI is developed on the basis of Immediate Payment Service (IMPS).
- To initiate a transaction, UPI applications use two types of address - global and local.
- **Global address** includes bank account numbers and IFSC.
- **Local address** is a virtual payment address.
- Virtual payment address (VPA) also called as UPI-ID, is a unique ID enable us to send and receive money from multiple banks and prepaid payment issuers.
- Bank or the financial institution allows the customer to generate VPA using phone number associated with Aadhaar number and bank account number.
- VPA replaces bank account details thereby completely hides critical information.
- The MPIN (Mobile banking Personal Identification number) is required to confirm each payment.
- UPI allows operating multiple bank accounts in a single mobile application.

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COMPUTER APPLICATION

# 17. E-COMMERCE SECURITY SYSTEMS

## Section – A

**Choose the best answer** **(1 Mark)**

1. In E-Commerce, when a stolen credit card is used to make a purchase it is termed as

a) Friendly fraud **b) Clean fraud** c) Triangulation fraud d) Cyber squatting

2. Which of the following is not a security element involved in E-Commerce?

a) Authenticity b) Confidentiality **c) Fishing** d) Privacy

3. Asymmetric encryption is also called as

a) Secure Electronic Transaction b) Certification Authority
**c) RSA algorithm** d) Payment Information

4. The security authentication technology does not include

i) Digital Signatures ii) Digital Time Stamps
iii) Digital Technology iv) Digital Certificates

a) i, ii & iv **b) ii & iii** c) i, ii & iii d) all the above

5. PGP stands for

**a) Pretty Good Privacy** b) Pretty Good Person
c) Private Good Privacy d) Private Good Person

6. _____ protocol is used for securing credit cards transactions via the Internet

**a) Secure Electronic Transaction (SET)** b) Credit Card Verification
c) Symmetric Key Encryption d) Public Key Encryption

7. Secure Electronic Transaction (SET) was developed in

a) 1999 **b) 1996** c) 1969 d) 1997

8. The websites secured by Secure Socket Layer protocols can be identified using

a) html:// b) http:// c) htmls:// **d) https://**

9. 3-D Secure, a protocol was developed by

**a) Visa** b) Master c) Rupay d) PayTM

10.Which of the following is true about Ransomware

a) Ransomware is not a subset of malware b) Ransomware deletes the file instantly

c) Typopiracy is a form of ransomware **d) Hackers demand ransom from the victim**

## Section-B

**Answer the following questions** **(2 Marks)**

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

- The leakage of trade secrets in E-Commerce mainly includes two aspects:
  (a) The content of the transaction between the vendor and customer is stolen by the third party;
  (b) The documents provided by the merchant to the customer or vice versa are illegally used by the another.
- This intercepting and stealing of online documents is called information leakage

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

- Typopiracy is a variant of Cyber Squatting.
- Some fake websites try to take advantage of users' common typographical errors in typing a website address and direct users to a different website.
- Such people try to take advantage of some popular websites to generate accidental traffic for their websites.

**3. Define non-repudiation.**

- Non-repudiation ensures that the signer who digitally signed the document cannot deny having signed it.
- It Prevents against violation agreement after the deal.

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

The security technologies in E-Commerce transactions are classified into

- 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.

## Section-C

**Answer the following questions** **(3 Marks)**

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

- Digital certificates are issued by recognized Certification Authorities (CA).
- When someone requests a digital certificate, the authority verifies the identity of the requester, and if the requester fulfills all requirements, the authority issues it.

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

- Information leakage
- Tampering
- Payment frauds
- 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 comparatively slow |
| • Plain text and cipher text are of same size | • The size of cipher text is always greater than plain text. |
| • Provides confidentiality | • Provides confidentiality, authenticity and non-repudiation |

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

- **Pretty Good Privacy (PGP)** is a decentralized encryption program that provides cryptographic privacy and authentication for data communication.
- PGP encryption uses a serial combination of hashing, data compression, symmetric-key cryptography and asymmetric-key cryptography.

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

- 3-D Secure is a secure payment protocol on the Internet, developed by Visa and adapted by MasterCard.
- It gives a better authentication of the holder of the payment card, during purchases made on websites.
- This authentication model comprise 3 domains (hence the name 3D) which are:
    1. The Acquirer Domain
    2. The Issuer Domain
    3. The interoperability Domain

## Section - D

**Answer the following questions:** **(5 Marks)**

**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. Explain encryption technology.**

- Encryption technology is an effective information security protection.
- It is defined as converting a Plaintext into meaningless Ciphertext using encryption algorithm thus ensuring the confidentiality of the data.
- The encryption or decryption process use a key to encrypt or decrypt the data.

**Types of Encryption Technologies:**

- Symmetric Key Encryption System
- Asymmetric Key Encryption System.

**1) Symmetric Key Encryption:**

- The Data Encryption Standard (DES) is a Symmetric key data encryption method.
- DES is the typical block algorithm that takes a string of bits of clear text (plain text) with a fixed length and transforms it into encrypted text of the same length.
- DES also uses a key because the algorithm can only be deciphered by people who know the exact key that has been used for encryption.
- The DES key is apparently 64 bits, but in fact the algorithm uses only 56.
- The other eight bits are only used to verify the parity and then it is discarded.
- DES is not safe for many applications, because of its relatively smaller key size (56-bit).
- So the key length can be easily increased by multiple use of the DES, described as Triple-DES, also known as TDES, 3DES or DESede.

**2) Asymmetric Or Public Key Encryption:**

- Asymmetric encryption also called as RSA (Rivest-Shamir-Adleman) algorithm.
- It uses public-key authentication and digital signatures.
- Symmetric Cryptosystems raises the problem of key exchange and key management.
- Unlike a symmetric encryption, the communicating parties need not know other's private key in asymmetric encryption.
- Each user generates their own key pair, which consists of a private key and a public key.
- A public-key encryption method is a method for converting a plaintext with a public key into a cipher text from which the plaintext can be retrieved with a private key.

**3. Differentiate digital signatures and digital certificates.**

| Digital Signature | Digital Certificate |
|---|---|
| • A digital signature is a mechanism that is used to verify that a particular digital document, message or transaction is authentic. | • A digital certificate is a computer file which officially approves the relation between the holder of the certificate and a particular public key. |
| • Digital signatures are used to verify the trustworthiness of the data being sent. | • Digital certificates are used to verify the trustworthiness of the sender. |
| • Digital signature is to ensure that a data remain secure from the point it was issued and it was not modified by a third party. | • Digital certificate binds a digital signature to an Entity. |

| | |
|---|---|
| • It provides authentication, non-repudiation and integrity | • It provides authentication and security. |

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

- Secure Electronic Transaction (SET) is a security protocol for electronic payments with credit cards by VISA and MasterCard.
- SET implementation is based on the use of digital signatures and encrypted data with asymmetric and symmetric algorithms.
- SET also use dual signatures to ensure the privacy.
- The SET purchase involves three major participants:
  - The Customer,
  - The Seller
  - The Payment Gateway.
- Here the customer shares the order information with the seller and the payment information only with the payment gateway but not with the others.
- So, with the SET, the credit card number cannot be stored in seller's files also could not be recovered by a hacker.
- The SET protocol guarantees the security of online shopping using credit cards on the open network.

**KEY 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 SSL.**

- Secure Sockets Layers (SSL) is a common Cryptographic protocol.
- SSL is a hybrid encryption protocol for securing transactions over the Internet developed by Netscape.
- It is based on a public key cryptography process to ensure the security of data transmission over the internet.
- Its principle is to establish a secure communication channel (encrypted) between a client and a server after an authentication step.
- The SSL system ensures the security of data, located between the application layer and the transport layer in TCP.

- For example, a user using an internet browser to connect to an SSL secured E-Commerce site will send encrypted data without any more necessary manipulations.
- Today, all browsers in the market support SSL, and most of the secure communications are proceeded through this protocol.
- SSL works completely hidden for the user, who does not have to intervene in the protocol.
- The user has to make sure the URL starts with **https:// instead of http://** where the "s" obviously means secured and also preceded by a green padlock.

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# 18. ELECTRONIC DATA INTERCHANGE- EDI

## Section – A

**Choose the best answer** **(1 Mark)**

1. EDI stands for
a) Electronic Details Information b) Electronic Data Information
**c) Electronic Data Interchange** d) Electronic Details Interchange

2. Which of the following is an internationally recognized standard format for trade, transportation, insurance, banking and customs?
a) TSLFACT b) SETFACT c) FTPFACT **d) EDIFACT**

3. Which is the first industry-specific EDI standard?
**a) TDCC** b) VISA c) Master d) ANSI

4. UNSM stands for?
a) Universal Natural Standard message b) Universal Notations for Simple message
**c) United Nations Standard message** d) United Nations Service message

5. Which of the following is a type of EDI?
**a) Direct EDI** b) Indirect EDI c) Collective EDI d) Unique EDI

6. Who is called as the father of EDI?
a) Charles Babbage **b) Ed Guilbert** c) Pascal d) None of the above

7. EDI interchanges starts with ____ and ends with ____
a) UNA, UNZ **b) UNB, UNZ** c) UNA, UNT d) UNB, UNT

8. EDIFACT stands for
a) EDI for Admissible Commercial Transport
b) EDI for Advisory Committee and Transport
**c) EDI for Administration, Commerce and Transport**
d) EDI for Admissible Commerce and Trade
9. The versions of EDIFACT are also called as
a) Message types b) Subsets **c) Directories** d) Folders

10.Number of characters in an single EDIFACT messages
a) 5 **b) 6** c) 4 d) 3

## Section-B

**Answer the following questions** **(2 Marks)**

**1. Define EDI.**

- The Electronic Data Interchange (EDI) is the exchange of business documents between one trade partner and another electronically.

**2. List few types of business documents that are transmitted through EDI.**

- Delivery Notes
- Invoices
- Purchase
- Orders
- Advance Ship Notice
- Functional Acknowledgements

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

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

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

- The versions of EDIFACT are also called as directories.
- These EDIFACT directories will be revised twice a year to include new or update existing EDIFACT messages.
- EDIFACT directories have names like D.18B

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

- Due to the complexity, branch-specific subsets of EDIFACT have developed.
- These subsets of EDIFACT include only the functions relevant to specific user groups.
- **Example:**
  - EDIFURN - furniture industry
  - EDIGAS - gas business

## Section-C

**Answer the following questions** **(3 Marks)**

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

- The Electronic Data Interchange (EDI) is the exchange of business documents between one trade partner and another electronically.
- It is transferred through a dedicated channel or through the Internet in a predefined format without much human intervention.
- It is used to transfer documents such as delivery notes, invoices, purchase orders, advance ship notice, functional acknowledgements etc.

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

- Electronic data interchange architecture specifies four different layers namely,
  - Semantic layer
  - Standards translation layer
  - Transport layer
  - Physical layer

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

- United Nations / Electronic Data Interchange for Administration, Commerce and Transport (UN / EDIFACT) is an international EDI - standard developed under the supervision of the United Nations.
- EDIFACT includes a set of internationally agreed standards, catalogs and guidelines for electronic exchange of structured data between independent computer systems.

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

- The basic standardization concept of EDIFACT is that there are uniform message types called United Nations Standard Message (UNSM).
- In so-called subsets, the message types can be specified deeper in their characteristics depending on the sector.
- The message types, all of which always have exactly one nickname consisting of six uppercase English alphabets.
- The message begins with UNH and ends with UNT.

**5. Write about EDIFACT separators.**

EDIFACT has the following punctuation marks that are used as standard separators.

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

## Section - D

**Answer the following questions:** **(5 Marks)**

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

The types of EDI were constructed based on how EDI communication connections and the conversion were organized.

**EDI Types:**

- **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.
- This type of EDI suits to larger businesses with a lot of day to day business transactions.
- **EDI via VAN:**
- EDI via VAN (Value Added Network) is where EDI documents are transferred with the support of third party network service providers.
- Many businesses prefer this network model to protect them from the updating ongoing complexities of network technologies.
- **EDI via FTP/VPN, SFTP, FTPS:**
- When protocols like FTP/VPN, SFTP and FTPS are used for exchange of EDI based documents through the Internet or Intranet it is called as EDI via FTP/VPN, SFTP, FTPS.
- Web EDI Web based EDI conducts EDI using an web browser via the Internet.
- **Mobile EDI:**
- When smartphones 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.

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

- EDI was developed to solve the problems inherent in paper-based transaction processing and in other forms of electronic communication.
- Implementing EDI system offers a company greater control over its supply chain and allow it to trade more effectively.
- It also increases productivity and promotes operational efficiency.
- The following are the other 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

**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 messages consist of segments, which in turn consist of composites.
- The final iteration is a data element.

**Segment Tables:**

- Segment table lists the message tags.
- It contains the tags, tag names, requirements designator and repetitation field.
- The requirement designator may be mandatory (M) or conditional (C).

**EDI Interchange:**

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

**EDIFACT message:**

- The basic standardization concept of EDIFACT is that there are uniform message types called United Nations Standard Message (UNSM).
- In so-called subsets, the message types can be specified deeper in their characteristics depending on the sector.
- The message types, all of which always have exactly one nickname consisting of six uppercase English alphabets.
- The message begins with UNH and ends with UNT.

**EDIFACT Segment:**

- It is the subset of message.
- A segment is a three-character alphanumeric code.
- These segments are listed in segment tables.
- 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.

**EDI Separators:**

- EDIFACT punctuation marks that are used as standard separators.

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******ALL THE BEST ******