12th STD

HALF YEARLY EXAMINATION - DEC. 2024-25

COMPUTER APPLICATIONS

Reg. No.

TIME ALLOWED : 3.00 Hours]   (with Answers)   [MAXIMUM MARKS : 70

Note : **(i)** **Answer all the questions.**

(ii) **Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer**

PART - I   (15×1=15)

1. Which of the following is an audio file format?
(a) MP3   (b) AVI
(c) MPEG   (d) PNG

2. Which tool lets you edit text?
(a) Text tool   (b) Type tool
(c) Crop tool   (d) Hand tool

3. Tables in RDBMS are called _____
(a) Records   (b) Relationships
(c) Attributes   (d) Models

4. Pre-defined functions are also called _____
(a) user-defined functions
(b) recursive functions
(c) built-in functions   (d) lambda functions

5. What is the output of the following code?
$arry=array(1, 2, 3, 4, 5);
foreach ($array as $value)
{
echo $value;
}
(a) 1 2 3 4 5   (b) 5 4 3 2 1
(c) 1 1 1 1 1   (d) None of the above

6. Which form control allows the user to select only one value at a time?
(a) text inputs   (b) buttons
(c) checkboxes   (d) radio buttons

7. 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");

8. Which 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. Wi-Fi stands for _____
(a) Wireless Fidelity   (b) wired fidelity
(c) wired optic fibre   (d) wireless optic fibre

10. Which is the contiguous area up to which the server has access?
(a) Zone   (b) Domain
(c) Resolver   (d) Name servers

11. Which cable is used in cable TV?
(a) UTP cable   (b) Fibre optics
(c) Coaxial cable   (d) USB cable

12. 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

13. 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

14. ECS stands for
(a) Electronic Clearing Services
(b) Electronic Cloning Services
(c) Electronic Clearing Station
(d) Electronic Cloning Station

15. _____ 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

PART - II

Answer **any SIX** of the following Questions. Question No. 24 is **Compulsory**.   **(6 × 2 = 12)**

16. Classify the TEXT components in multimedia.

17. What is a Pasteboard in PageMaker?

18. What is 'Echo' statement used for? Give an example.

19. What is an array in PHP and what are its main types?

20. Expand HTTP, HTTPS, FTP.

21. What are the types of twisted pair cables?

22. What is dotcom bubble and dotcom burst?

23. Explain the concept of e-wallet.

[1]

24. What is the output of the following code?

```php
<?php
    $x = 10;
    if ($x > 5)
    {
      echo "x is greater than 5";
    }
else
{
echo "x is not greater than 5";
}
?>
```

PART - III

Answer **any SIX** of the following Questions. Question No. **33** is **Compulsory**.   (6 × 3 = 18)

25. List out the different types of data types in PHP.

26. Explain the difference between the POST method and GET method of sending data to the server in PHP.

27. Write MySQLi Connection Syntax with example.

28. Write a note on Resource sharing.

29. Write a note on URL and its types.

30. List out the Popular Open Source Software.

31. Write a note on digital certificate.

32. Write a note on UN/EDIFACT.

33. Write a PHP code to print 1 to 10 numbers in ascending order using for loop.

PART - IV

Answer **all** the following questions.   (5 × 5 = 25)

34. (a) Explain in detail about different file formats in multimedia files.   **(OR)**

   (b) Write the steps to place the text in a frame.

35. (a) Discuss on various database models available in DBMS.   **(OR)**

   (b) Discuss in detail about switch statement with an example.

36. (a) Explain 'forech' loop with examples.   **(OR)**

   (b) Explain about Internet, Intranet and Extranet.

37. (a) Explain the IP address and its classification.

   (OR)

   (b) Explain the components used in Ethernet cabling.

38. (a) Explain any five E-Commerce revenue models.   **(OR)**

   (b) Explain in detail: Unified payments interface.

Answers

PART - I

1. (a) MP3   **2.** (a) Text tool

3. (b) Relationships **4.** (c) built-in functions

5. (a) 1 2 3 4 5   **6.** (d) radio buttons

7. (a) mysqli_close("Connection Object");

8. (c) Both a & b

9. (a) Wireless Fidelity

10. (a) Zone

11. (c) Coxial cable

12. (b) Network simulation

13. (d) Work outsourced to a third party outside its own country

14. (a) Electronic Clearing Services

15. (a) Secure Electronic Transaction (SET)

PART - II

16. (i) Static Text   (ii) HyperText

17. (i) A document page is displayed within a dark border.

   (ii) The area outside of the dark border is referred to as the pasteboard.

   (iii) Anything that is placed completely in the pasteboard is not visible when the document is printed.

   (iv) The use of pasteboard is to temporarily hold elements while designing document.

18. In PHP, the echo statement is used to output a string or other data to the screen. It is a simple and efficient way to display information to the user. The echo statement can be used in several different ways:

   • To output a single string: (String values must be enclosed in single or double quotes.)

     Examples :

     echo 'Hello, world!';

   • To output multiple strings, separated by commas:

     Examples :

     echo "Hello, world!";

19. An array is a special data type. It can hold many values under a single variable name. An array element can be any type of data.

   There are three main types of arrays in PHP:

   1. Indexed array   2. Associative array

   3. Multi-dimensional array

20. (i) HTTP - Hypertext Transfer Protocol

(ii) HTTPS - Hypetext Transfer Protocol Secure

(iii) FTP - File Transfer Protocol

21. Two types of twisted pair cables are Unshielded Twisted Pair (UTP) and Shielded Twisted Pair (STP).

22. **(i) 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.

(ii) 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. This began on March 11, 2000 and lasted until October 9, 2002.

23. (i) Electronic wallets (e-wallets) or electronic purses allow users to make electronic transactions quickly and securely over the Internet through smartphones or computers.

(ii) The electronic wallet functions almost the same as a physical wallet in term that it holds our money.

(iii) Electronic wallets were first recognized as a method for storing money in electronic form, and became popular because it provides a convenient way for online shopping.

24. **Output :**

"x is greater than 5".

PART - III

25. The following are the eight data types:

(i) Integer   (ii) Float

(iii) String   (iv) Boolean

(v) Array   (vi) Object

(vii) Resource   (viii) NULL

26.

Post Method	Get Method
The input data sent to the server with POST method is stored in the request body of the client's HTTP request.	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 click the submit button.

27. **Syntax :**

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

Example :

```php
<?php
$servername = "localhost";
$username = "username";
$password = "password";
$DB_name = "School_DB";
//Create connection
$conn = mysqli_connect($servername, $username, $password, $DB_name);
```

28. (i) It allows all kind of programs, equipments and data to be accessed by anyone via network irrespective of the physical location of the resource.

(ii) Simply resource sharing is a sharing of devices like printers, scanner, PDA, fax machine, and modems.

29. (i) URL (Uniform Resource Locator) is the address of a document on the Internet. It is made up four parts : protocols, hostname, folder name and file name.

(ii) Each part has its own specific functions. Depending on the application, additional information can be added to the URL.

URL Types : The URL is divided into 2 types

(i) Absolute URL   (ii) Relative URL.

(i) Absolute URL: The absolute URL is the complete address of a document on the Internet.

(ii) Relative URL: The relative URL is the partial address of a document on the Internet. Relative URL contains only a file name or a file name with folder name.

30. NS2, OPEN NMS, Ubuntu, MySQL, PDF Creator, Open Office, 7zip GNUCASH, GIMP, BLENDER, AUDACITY, VLC, MOZILA FIREFOX, MAGENTO, ANDROID, PHP.

31. (i) A digital certificate is an electronic document used to prove the ownership of a public key.

(ii) This certificate includes the information about the sender's identity, digital signature and a public key.

(iii) A digital certifcate function is similar to the function of identification cards such as passports and driving licenses.

(iv) Digital certificates are issued by recognized Certification Authorities (CA).

(v) Common digital certificate systems are X.509 and PGP (Pretty Good Privacy).

32. (i) 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.

(ii) In 1987, the UN / EDIFACT syntax rules were approved as ISO: ISO9735 standard by the International Organization for Standardization.

(iii) EDIFACT includes a set of internationally agreed standards, catalogs and guidelines for electronic exchange of structured data between independent computer systems.

(iv) It is a cross-industry, standard data format of electronic data for commercial transactions.

(v) Maintenance and further development of this standard goes through the United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT), which is affiliated to the UN Economic Commission for Europe (UNECE).

33. for ($i = 1; $i<= 10; $i++)

```
{
    echo $i . "<br>";
}
```

Output :

1
2
3
4
5
6
7
8
9
10

PART - IV

34. (a) **File Formats for Multimedia :** The following is an outline of current file formats used for the production and delivery of multimedia data.

(1) Text Formats: RTF : Rich Text Format is the primary file format introduced in 1987 by Microsoft with the specification of their published products and for cross-platform documents interchange.

Plain text :

(i) Plain text files can be opened, read, and edited with most text editors.

(ii) The commonly used text editors are Notepad (Windows), Gedit or nano (Unix, Linux), TextEdit (Mac OS X) and so on.

(2) Image Formats :

TIFF (Tagged Image File Format) :

(i) This format is common in desktop publishing world (high quality output), and is supported by almost all software packages.

(ii) Recent versions of TIFF allows image compression, and the format is comfortable for moving large files between computers.

DIB (Device Independent Bitmap) : A device independent bitmap contains a colour table. The colour describes how pixel values corresponds to RGB colour values, which describes colors that are produced by emitting light.

GIF (Graphics Interchange Format) :

(i) GIF is a compressed image format. Most of the computer color images and backgrounds are GIF files.

(ii) This file format is best suitable for graphics that uses only limited colors, and it is the most popular format used for online color photos.

TGA (Tagra) : It is the first popular format for high-resolution images. TGA files are common in animation video industry.

PNG (Portable Network Graphics) :

(i) PNG is an extensible file format for the less loss, portable and well compressed storage of raster images.

(ii) PNG acts as replacement for GIF and also replaces multiple common uses of TIFF.

(3) Digital Audio File Formats :

WAV (Waveform Audio File Format)

(i) WAV is the most popular audio file format in windows for storing uncompressed sound files.

(ii) In order to attain the reduced file size it can also be converted to other file formats like MP3.

MP3 (MPEG Layer-3 Format) : MPEG Layer-3 format is the most popular format for storing and downloading music. The MP3 files are roughly compressed to one-tenth the size of an equivalent WAV file.

(4) Digital Video File Formats :

AVI (Audio/Video Interleave) : AVI is the video file format for Windows. Here sound and picture elements are stored in alternate interleaved chunks in the file.

MPEG (Moving Picture Experts Group) : MPEG is a standard for generating digital video and audio compression under the International Standards Organization (ISO) by the group of people. Simply MPEG is the standards for digital video and audio compression.
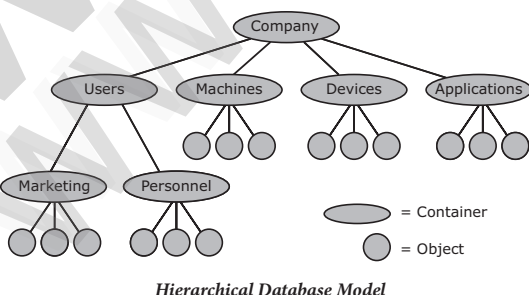
(OR)

(b)   To place text in a Frame

(i)   Click on any one Frame tool from the Toolbox.

(ii)   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.

(iii)   Click on File > Place. The Place dialog box will appears.

(iv)   Locate the document that contains the text you want to place, select it.

(v)   Click on Open.

(vi)   Click inside the frame to place the text in it. The text will be placed in the frame.
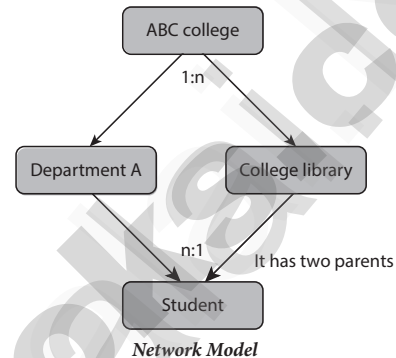
35.(a) The database technology came into existence in terms of models with relational and object-relational behavior. The major database models are listed below:

1. Hierarchical Database Model :

- The famous Hierarchical database model was IMS (Information Management System), IBM's first DBMS.
- In this model each record has information in parent/ child relationship like a tree structure.
- The collection of records was called as record types, which are equivalent to tables in relational model. The individual records are equal to rows.

Hierarchical Database Model

2. Network model :

- The first developed network data model was IDS (Integrated Data Store) at Honeywell.
- Network model is similar to Hierarchical model except that in this model each member can have more than one owner.
- The many to many relationships are handled in a better way.

Network Model

- This model identified the three database components are as follows.

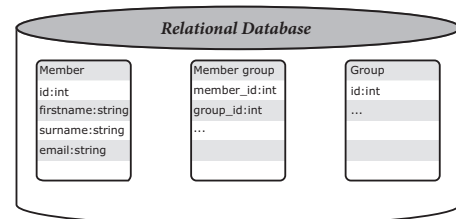**Network Schema:** Schema defines all about the structure of the database.

Sub Schema : Control on views of the database for the user.

Language : Basic procedure for assessing the database.

3. Relational model : Oracle and DB2 are few commercial relational models in use Relational model is defined with two terminologies Instance and Schema.
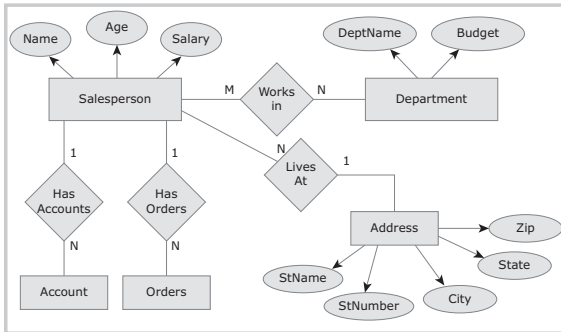
Instance : A table consisting of rows and columns.

Schema : Specifies the structure including name and type of each column.

Relational Database Model

4. Object - oriented database model :

- This model incorporates the combination of Object Oriented Programming (OOP's) concepts and database technologies.

- ◆ Practically, this model serves as the base of Relational model. Object oriented model uses small, reusable software known as Objects.
- ◆ These are stored in object oriented database.

Object-oriented Database Model

(OR)

(b) **Switch Statement:**
- ◆ This is a multiple branching statement where, based on a condition, the control is transferred to one of the many possible points.
- ◆ The switch statement is used to specify multiple conditions. It runs a different code block for different conditions.

Syntax
```
switch (expression)
{
case value1:
    //code to be executed if expression = value1;
    break;
case value2:
    //code to be executed if expression = value2;
    break;
...
default:
    //code to be executed if expression is not equal
    to any of the values;
}
```
Example :
```
<?php
    $x = 10;
    switch ($x)
    {
        case 5:
            echo "x is equal to 5";
            break;
        case 10:
            echo "x is equal to 10";
            break;
```

```
        case 15:
            echo "x is equal to 15";
            break;
        default:
            echo "x is not equal to 5, 10, or 15";
    }
?>
```
Output :
x is equal to 10

36. (a) The foreach loop is used to iterate over elements of an array.

Syntax
```
foreach ($array as $value)
{
    //code to be executed;
}
```
Example
To print the elements of an array:
```
$array = array(1, 2, 3, 4, 5);
foreach ($array as $value)
{
    echo $value . "<br>";
}
```
Output :
1
2
3
4
5

You can also use the foreach loop to iterate over the keys and values of an associative array by using the following syntax:
```
foreach ($array as $key => $value)
{
//code to be executed;
}
```
The foreach loop will iterate over each element of the array and assign the key of the element to the $key variable and the value of the element to the $value variable.

(OR)

(b) **INTERNET :**
- ◆ The Internet is a worldwide system of computer networks- A network of networks where the users at any one computer can get information from any other computer.
- ◆ The Internet is a network of global connections – comprising private, public, business, academic and government networks connected by guided, wireless and fiber-optic technologies.

♦ The unique aim was to generate a network that would permit users of a research computer from one university to "talk to" research computers on other universities.

♦ The Internet denotes to the global communication system, including infrastructure and hardware, whereas the web is one of the services interconnected over the Internet.

INTRANET :

♦ Intranet 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.

EXTRANET: Extranet is a private network that uses Internet technology and the public telecommunication system to securely share business information with suppliers, vendors, partners, customers, or other business.
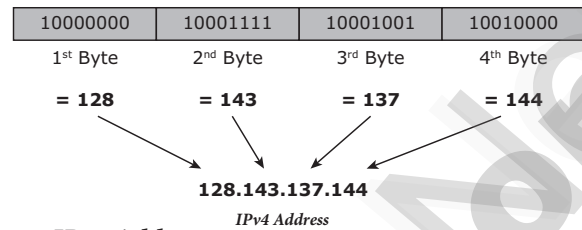
37. (a) **IP Address :**

♦ Internet Protocol (IP) address is simply the logical address in the network layer.

♦ IP address is used to find the host system in the whole network. Due to increasing the number of systems in a network there is a need of more addresses. It leads to two addressing methods i.e., IPv4 and IPv6.

IPv4 Address :

♦ The IPv4 address is a 32-bit unique address given to a computer on the network. So no two systems on the network can have the 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 (IP).

♦ 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.

♦ So, the number of addresses that can be formed in IPv4 is 2^{32}. There are two ways to represent the IP address

1. Binary notation   2. Dotted-decimal notation

♦ In binary notation the address is expressed as 32-bit binary values. For E.g. 00111001 10001001 00111000 00000111

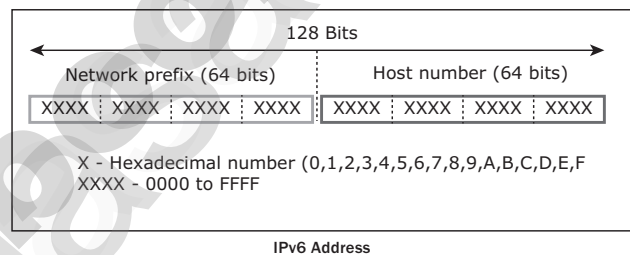♦ In dotted-decimal notation the address is written in decimal format separated by dots(.).

For Eg: 128.143.137.144

10000000	10001111	10001001	10010000
1st Byte	2nd Byte	3rd Byte	4th Byte
= 128	= 143	= 137	= 144

128.143.137.144
IPv4 Address

IPv6 Address :

♦ The IPv6 address is a 128-bit unique address given to a computer system. The number of addresses that can be formed in IPv6 is 2^{128}.

♦ 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. 2001:0000:3231:DFE1:0063:0000:0000:FEFB.

128 Bits

Network prefix (64 bits)   Host number (64 bits)

XXXX XXXX XXXX XXXX | XXXX XXXX XXXX XXXX

X - Hexadecimal number (0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F
XXXX - 0000 to FFFF

IPv6 Address

(OR)

(b) Ethernet cabling is the process of connecting the computers with other devices using Ethernet cables. The four main components used in the Ethernet cabling components are

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

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.

♦ Ethernet cables are normally manufactured in several industrial standards such as Cat 3, Cat 5, Cat 6, Cat 6e and cat 7. "Cat" simply stands for "Category," and the following number indicates the version.

♦ Latest version denotes faster and higher frequencies, measured in Mhz.

RJ45 Connector:

♦ The RJ45 connector looks similar like a telephone jack but it looks a slightly wider. In RJ45 the "RJ" stands for the Registered Jack and the "45" simply refers to the interface standard.

* The RJ45 connector is a small plastic cube. It has eight pins.
* It is connected to each end of the Ethernet cable. It is also known as 8P8C connector.

Ethernet Port:

* Ethernet port is an opening which is a part of an Ethernet card. It accepts RJ45 connector with Ethernet cable.
* It is found on personal computers, laptops, routers, switches, hubs and modems.
* Once you inject the plug into the port the two led lights will glow in the computer, one is green and another one is orange. The orange light will start blinking which indicates that the Internet is connected.

Crimping Tool:

* Crimping is the process of joining two or more pieces of wire to hold each other.
* The crimping tool is a physical tool which is used to connect the patch wire and the Ethernet connector.
* The crimping tool looks like a small cutting handle with two mould of Ethernet port.

38.(a)
* Auction website is a kind of website, that auctions items on the Internet and levies some commission from the sales. e.g. https://www.ebay.com/
* Banner advertisement website displays advertisements of other companies in its websites and thereby earns revenue.
* Bulk-buying website collect a number of users together where every one wants to buy similar items - the site negotiates a discount with the supplier and takes commission. e.g. https://www.alibaba.com/
* Digital publishing sites 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/
* Licensing sites allow other websites to make use of their software. For example, the search engines which allow a visitor of the site to search within the website more easily.
* Name-your-own-price websites are just like normal retail sites. In contrast, the buyer negotiates with the retailer for a particular product or service. https://in.hotels.com/
* Online Shopping mall website allows multi E-Commerce traders to assemble together on a single website. Often these sellers would be related to each other, for example they may all sell luxury goods. This site would take a percentage of their profit.

(OR)

(b)　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/
* 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 similar to email id (e.g. name@bankname) enable us to send and receive money from banks.
* The 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.

Advantages :

* Immediate money transfers through mobile device round the clock 24 x 7.
* Can use single mobile application for accessing multiple bank accounts.
* Single Click Authentication for transferring of fund.
* It is not required to enter the details such as Card no, Account number, IFSC etc. for every transaction.
* Electronic payments will become much easier without requiring a digital wallet or credit or debit card.

★★★