



Central Board of Secondary Education

FINANCIAL LITERACY



MODULE II

NPCI
भारतीय राष्ट्रीय भुगतान निगम
NATIONAL PAYMENTS CORPORATION OF INDIA

Preface

“Education imparted by heart can bring revolution in the society.” Maulana Abul Kalam Azad, 1st Education Minister of India

India is one of the fastest-growing economies in the world, with the second-largest population. The Census of India 2001 data reveals that India’s young generation is the largest age-segment, with over 47% of the population aged below 21. The Ministry of Human Resource Development, the Government of India, prescribes the National Skill Qualification Framework (NSQF) to prepare the young generation for the current century’s challenges.

Financial literacy is one key area of focus in NSQF because it enables us to understand the administration, management, supervision and control of money. With the help of financial literacy, we can develop a culture of saving money. We can easily differentiate between our ‘needs’ and ‘wants’. We can also plan our finances better, which results in the overall growth of the quality of life.

Financial literacy empowers us to make better financial decisions. The lack of it, however, results in overwhelming stress for an individual. Without financial literacy, we are vulnerable to financial frauds.

This student handbook on financial literacy attempts to introduce the learners to the basic financial concepts, including the evolution of money, the origins of modern banking in India, and the operations and services offered by various types of banks in India.

Further, the digitisation of the Indian banking system is one of the focus areas of the handbook. The Reserve Bank of India and its umbrella organisations like the National Payments Corporation of India (NPCI) are revolutionising India’s retail payments and settlement systems. Early knowledge of digital payments and settlements help learners with the fundamental skills of modern banking.

We encourage the learners to utilise this handbook’s resources and activities by applying the knowledge in their lives.

Chairperson, CBSE

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Unit 1:

Team Work

Learning Objectives

The objective of this unit is to discuss teamwork and its benefits. The unit focuses on:

- Describing team and teamwork
- Identifying the requirement of teamwork
- Describing the benefits of teamwork

Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom	Understand the meaning of team and teamwork	Describe the meaning of teamwork	Examine the importance of teamwork in day to day life	Interactive Lecture: Meaning of team and teamwork Activity: Discuss with a friend or elder sibling for further learnings on teamwork
	Identify the skill requirements of teamwork	Enlist the skill requirements of teamwork	Identify the skills required for teamwork in projects.	Interactive Lecture: Requirements of teamwork
	Understand the benefits of teamwork	Describe the advantages of teamwork	Appreciate the advantages of teamwork in classrooms	Interactive Lecture: Benefits of Team-work Activity: Based on personal observations in a school-based team, enumerate the benefits of teamwork with your classmates in a classroom session

1. Teamwork

In the previous class, we learned that a group of people who come together to perform a common goal or objective is known as a team. Common examples of teams found in schools and colleges are football team, cricket team, or tug-of-war team. Similarly, in business organisations, teams are referred to as work teams.



When members of a team perform some work together, it is known as teamwork. Excellent and effective teams make challenging tasks achievable and straightforward. When a team works together, each member can contribute based on their unique set of abilities and skills. For example, while making a cricket team, the coach and players choose a captain, a wicket-keeper, batsmen, all-rounders and bowlers.

Therefore, team output results from various individuals contributing uniquely and distinctly yet for a common purpose. The purpose could be to win a game, a tournament, or to finish a study project.

1.1 Effective Team Skills

Teams are an excellent way for individuals to come together and achieve common goals. However, team members need to possess and demonstrate specific skills to achieve common goals.

Let us briefly recall the kind of skills that are required for teams to work effectively:

Communication Skills	Team members should have the ability to listen attentively and also put across their thoughts and viewpoints.
Interpersonal Skills	Teams work well when there is harmony within the members, which becomes possible to demonstrate interpersonal skills.
Feedback Skills	Giving and receiving feedback are essential skills for teams to work. It involves being able to communicate improvement points to other members while also receiving feedback calmly and gracefully.
Conflict Resolution	It is usual for differences to arise among team members. Therefore, members need to demonstrate conflict resolution skills to sort out the differences peacefully, without impacting the team-work.

1.2 Difference between Teams and Groups

How is a team different from a group? Even a group consists of individuals who have common characteristics. However, they may or may not have common goals or objectives—for example, study groups.

Let us take the example of a football team. A football team is different from a study group because, in a football team, the common goal of winning against the other team drives all team members.

Common goals or objectives are essential aspects that differentiate a 'Team' from a 'Group'.



1.3 Benefits of Teamwork

When individuals join together as a team, this leads to various benefits such as:

- **Higher Productivity:** Humans are essentially social beings, and when we work together, we tend to work faster and more effectively.
- **Better Cooperation:** Working as a team enables improved cooperation among the members. They can learn from each other's mistakes and provide support where required.
- **Creativity and Problem Solving:** Team-work provides opportunities for all members to take advantage of their unique skill-set and propose new creative approaches to solve challenges.
- **Sharing of Work:** When a set of people work as a team, the work burden gets divided amongst the members. There is a reduced risk of stress on any one individual.
- **Learning and Motivation:** Everyone in the team can learn new things from one another. This keeps everyone motivated and focused on goals or objectives.

Summary

- A group of people who come together to perform a common goal or objective is known as a team
- Team members need to possess and demonstrate communication, interpersonal, feedback and conflict-resolution skills to achieve common goals
- A team is different from a group because a group consists of individuals who may or may not have common goals or objectives

- Various benefits of teamwork include higher productivity, better cooperation, creativity and problem solving, sharing of work, and learning and motivation

Unit 1: Self-Test Questions

Choose the correct option(s)

1. Which of the following is an example of a team?
 - a. Siblings and cousins
 - b. Tuition colleagues
 - c. Army regiment
 - d. Parents and grandparents
2. Which of the following statements distinguishes a team from a group?
 - a. Teams have team leaders and groups have group leaders
 - b. A team does not work towards a common purpose, but a group does
 - c. A team works towards a common purpose, but a group does not
 - d. Teams have similar jerseys for each team member, but groups do not

Fill in the blanks

1. Excellent and _____ teams make challenging tasks achievable and straightforward.
 - a. Effective
 - b. Enormous
 - c. Elated
 - d. Ecstatic
2. For a team to work efficiently, team members should _____ with each other properly
 - a. Contradict
 - b. Communicate
 - c. Convolute
 - d. Covert
3. Members need to show conflict resolution skills to sort out the _____ peacefully, without impacting the teamwork
 - a. Similarities
 - b. Dissimilarities
 - c. Reciprocities
 - d. Parities

True or False

1. Teams work well when there are differences among the members. ()
2. Feedback should be taken or given while working in a team to avoid conflicts.()
3. Humans tend to work slower in a team.()

Unit 2:

Introduction to Financial Literacy

Learning Objectives

The objective of this unit is to discuss the basic concepts of Finance. This unit focuses on understanding:

- Basic financial concepts
- The concept of cash memo

Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom/ Museum	Understand the basics of financial concepts	Describe basic financial concepts and the difference between needs and wants	Appreciate the importance of basic financial concepts in daily life	Interactive Lecture: Basic Financial concepts Activity: Discuss with parents and seek further information on basic financial concepts
	Introduction to cash memo	Describe the purpose and working of cash memo	State the purpose and importance of cash memos	Interactive Lecture: Meaning of cash memo. Activity: Enlist the various types of banks in India

2. Introduction to Financial Literacy

How often do we see our parents plan the monthly budget for groceries, house-rent, school-fee, etc. Now and then, we find adults giving each other financial advice like where to invest, why to invest and how to invest. The possession of such financial knowledge and skills that help us make intelligent financial decisions or choices is called financial literacy.

2.1 Understanding Basic Financial Concepts



In order to possess good financial knowledge, we need to understand some basic financial concepts.

Money	Money is a recognised medium of exchange in the economy. It is an asset that can be stored and used as currency or as the value in accounts and deposits.
Currency	Currency is the physical form of money in the form of coins and rupees. Each country typically has its currency as a medium of exchange, issued by the central bank. The Government of India (GoI) and the Reserve Bank of India (RBI) are the issuers of the currency, i.e. Indian Rupees.
Bank	A bank is a government authorised financial institution. It acts as a custodian of money deposited by account holders. It uses the collected funds to extend loans to individuals and businesses while charging interest. Banks also provide other financial services such as wealth management, currency exchange, and safe deposit boxes.
Account	An account is a repository of funds held by a bank on behalf of the account holder. An account can be of various kinds such as savings, current or fixed. The bank identifies each account by a unique account number issued to the account holder.

When accompanying parents to the market, observe how they purchase the various items. Every purchase requires the use of money. We can observe that money is the accepted medium of exchange. It allows us to buy the things we require, from basic things such as bread and butter to high-value products as a car.

In India, we use a form of currency known as the 'Rupee'. We all would indeed have used 'rupees' when buying food from the school canteen.

2.2 Barter System

Historically speaking, humans have been transacting in goods much before the invention of money. How were these transactions taking place without money?

The answer is 'Barter System'. In the previous class, we learned about the Barter System through the story of Satya and Ahmad. Let us recap the story.

Satya has two bags of wheat at his home; however, he needs only one of them for his monthly consumption. On the other hand, Ahmad has two bags of rice out of which he can spare one.

So they meet and decide to exchange the bag of wheat with that of rice. After the barter exchange, Satya and Ahmad both have one bag of rice and wheat to match their food requirement.

We see simple barter exchange in everyday life too. For example, suppose you want to refer to your sister's encyclopaedia. On the other hand, your sister wants to play a video game that you have. So, you give your video game to your sister and borrow her encyclopaedia in return, completing the barter exchange.

2.3 Needs and Wants

To better understand the Barter System, we should know the meaning of 'Needs' and 'Wants'.



In the Satya-Ahmad example, while Satya needs rice to meet his family's food requirements, Ahmad needs a wheat bag for the same purpose. However, rice and wheat are not their 'wants'.

Let us try to understand the same through another example. When we feel hungry, we need food to satisfy our hunger. Therefore, food is our 'need'. However, when we go out for a school picnic, we feel tempted to have fruit juice or pop-corns. In this situation, neither fruit juice nor pop-corns are our 'needs'; however, those are our 'wants'.

'Needs' are the essential requirements in our life such as food, clothes and house. On the other hand, 'wants' are for the things we require to enhance our life quality such as games, music and TVs.

2.4 Evolution of Trade and Commerce

Before we understand trade and commerce evolution, it is vital to understand the differences between the two. As per the definition of trade, it is the fundamental economic activity involving buying and selling goods and services. For example, you ask for a loaf of bread from the general store, and in order to purchase it, you give a certain amount of money to the shopkeeper. This simple transaction is known as trade.

On the other hand, we define commerce as those activities that promote the buying and selling of goods, right from when the goods are manufactured until the customer buys the goods. For example, while purchasing the loaf of bread, the related commerce activities could be:

1. Transportation of bread from the bakery to the general store
2. Payment made by the shopkeeper to the bread maker
3. Bread's advertisement display in the shop
4. Payment made by you to the shopkeeper

Historians and financial experts link the evolution of trade across the world with the money system's development. Trade across continents and between different civilisations has been prevalent in our world from ancient times. While ancient traders traded their goods using the barter system, humans also used commodities like livestock, salt, metal, rare stones, etc.



Did You Know?

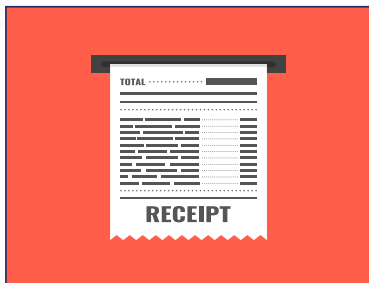
The Han Dynasty, which ruled China from 206 BC to 220 AD, opened up the 'Silk Road' trading route between China and Central Asia.

Various kinds of merchandise travelled along the Silk Road, making it one of the world's oldest international trade routes.

2.5 Concept of Cash Memo

Often, when we purchase groceries from a local store, the store-keeper hands us over a receipt of items. This receipt is an example of a cash memo.

We use cash memos in 'cash' transactions. Both the seller and the buyer should document their transaction to avoid any confusion in the future. Therefore, a cash memo acts as "proof of cash sales" in any business or transaction.



Summary

- Possession of financial knowledge and skills that help us make intelligent financial decisions or choices is called financial literacy
- Money is a recognised medium of exchange in the economy
- An account is a repository of the funds held by a bank on behalf of the account holder
- A barter exchange is a transaction of good or service for another good or service without the use of money
- 'Needs' are the essential requirements of our life. On the other hand, 'wants' are for the things we require to enhance our life quality
- Ancient traders traded their goods using the barter system using commodities like livestock, salt, metal, rare stones, etc.
- Cash memo acts as "proof of cash sales" in any business or transaction

Abbreviations

GoI	Government of India
RBI	Reserve Bank of India
BC	Before Christ (or the labelling of dates before the birth of Jesus Christ in Julian or Gregorian calendars)
AD	<i>Anno Domini</i> (literally meaning 'the year of our lord'; the labelling of dates after the birth of Jesus Christ in Julian or Gregorian calendars; also known as CE or 'common era')

Unit 2: Self-Test Questions

Choose the correct option(s)

1. What is the benefit of being financially literate?
 - a. Financial literacy helps us make intelligent financial decisions
 - b. Financial literacy is only helpful for adults
 - c. Financial literacy does not help us at all
2. Which of the following is NOT a need?
 - a. Home b. Food c. Clothes d. Car

Fill in the blanks

1. Cash memo acts as _____ in any business or transaction
 - a. Proof of cash sales b. Proof of cold sales
 - c. Proof of card sales d. Proof of cell sales
2. The _____ opened up the 'Silk Road' trading route between China and Central Asia
 - a. Man Dynasty b. Chan Dynasty
 - c. Han Dynasty d. Pan Dynasty

Unit 3:

Banking

Learning Objective

The objective of this unit is to introduce the basic concepts of Banking. This unit focuses on:

- Understanding the evolution of banking
- Discussing various types of banks and their services and products
- Understanding key banking operations

Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom	Understand the evolution of banking	Describe the importance and evolution of banking	Chart the evolution of banking across history	Interactive Lecture: Evolution of Banks
	Describe various types of banks	Understand the types of services and products offered by banks	Enlist different types of banks and the services they offer	Interactive Lecture: Various types of banks Activity: Enlist the various types of banks in India

3.Banking

Let us understand the concept of banking with the help of an example.

Consider a situation where a person (lender) lends some money to another person (receiver) without a cash memo or similar evidence. After a while, the lender demands his money back, but the receiver fails to do so. The lender cannot approach the police or file a lawsuit against the receiver because of the lack of evidence.

Consider a different situation where there is a specialised institution that performs the role of a lender. It keeps all due documentation and lends money on specified rate of interest. The bank further instructs the receiver to pay back the money within the stipulated time. Failure to do so would invite fines and other actions.

This important institutional role is performed by banks. A bank is a financial system licensed by the governing authority to lend money to people in the form of loans and receive money from people in savings and deposits.



3.1 Evolution of Money

We can see that a Barter-like exchange system has its limitations and only works when one has something to offer that the other person needs and vice versa. It may not always be the situation. The limitations of the Barter System led to the evolution of money.

In ancient India, people used gold coins as a mode of currency. Similarly, different world regions have been using other precious/semi-precious products as a trade unit. For example, the ancient Aztecs used beans as a trade currency, and Norwegians used butter.

Similarly, US colonists used tobacco leaves and animal hides as a form of currency.

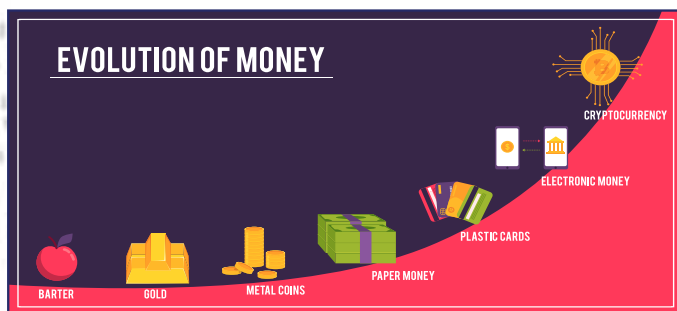
Gradually, however, as human civilisation progressed, coins and currency notes came into circulation. The development of currency has been representative of the evolutionary level of an economy across ages.



Historians date the earliest known records of metal coins to the 5th or 6th century BC. These coins were in the shape of tools like hoes and billhook (tools used in farming). Ancient civilisations used *electrum** to make coins.

In ancient India, too, metal coins came into circulation around the 6th century BC. Paper currency is said to have been introduced in India by the Mughals in the year 1236 AD. However, the transition to paper currency is said to have occurred in China during the 10th century.

*naturally occurring alloy of Gold and Silver



Plastic cards in the form of credit and debit cards are replacing paper money for making transactions.

In addition to that, banking transactions through the internet have been gaining popularity in recent years. It is known as net-banking. Net-banking involves the transfer of money electronically; hence the term electronic money came into existence.

The latest form of money used for transactions utilising block-chain technology is called crypto-currency. Some examples of crypto-currency are bitcoin, ethereum and ripple.

3.2 Banks and Their Importance

A bank works according to strict rules and serves many more essential functions to individuals and businesses. To explain in simple words, a bank is an institution where people deposit and withdraw funds. In this sense, a bank acts as a 'vault' for the safe-keeping of funds.

On the other hand, people may need funds more than their savings to purchase high-value products such as cars, bikes etc. In such situations, banks also provide 'loans' to the 'deposit holders'.



Banks play an essential role in the development of our nation, such as:

- Banks help in economic development by providing loans to farmers, service members, business people, and organisations
- Banks provide people and businesses with the opportunity to convert their savings into investments
- Banks raise the standard of living by providing loans for consumer goods, homes, automobiles, etc.

- Banks identify our country's backward regions and help in their economic and social development by providing them adequate funds at reasonable interest rates

3.3 Origins of Banking

In ancient human history, banking started in the temples and palaces even before 2000 BC. People used to store precious stones, relics, jewels and valuable artefacts in places of worship and mausoleums in honour and respect of kings and religious deities.

Ancient Greeks, too, developed a system of transferring money in the form of book entries.



Modern banking in India started in the form of the Bank of Hindostan in 1770. Bank of Calcutta (formed in 1806 and later known as the Bank of Bengal), Bank of Bombay (formed in 1840) and Bank of Madras (formed in 1843) merged in 1921 to form Imperial Bank of India. After independence, the GoI and the RBI nationalised the Imperial Bank of India in 1955 and renamed it the State Bank of India (SBI). SBI is also the oldest surviving bank of India.



State Bank of India branch in London, England

Nationalised banks in the country include:

1. State Bank of India
2. Bank of India
3. Bank of Maharashtra
4. Canara Bank
5. Indian Overseas Bank
6. Punjab & Sind Bank
7. Punjab National Bank
8. UCO Bank
9. Bank of Baroda
10. Union Bank of India
11. Indian Bank
12. Central Bank of India (not to be confused with RBI)

3.4 Types of Banks

Let us recall the different types of banks we learned in the previous standard. We categorised them based on their ownership and the services they offer:

Central Bank: A central bank is the most important institution in the financial system of any country. The Reserve Bank of India (RBI) plays the role of a central bank in our country.

Commercial Banks: These banks include public sector banks owned by the government and also private banks. Commercial banks provide a direct interface to the people allowing them to open and manage accounts, to obtain loans and other financial services. For example, the State Bank of India.

We classify commercial banks into four different types, namely:

- Public sector banks or the nationalised banks of India like SBI, Union Bank of India, etc.
- Foreign banks like National Australia Bank, American Express Banking Corporation, etc.
- Private sector banks like HDFC, ICICI, Axis Bank, etc.
- Regional Rural Banks (RRBs)

3.5 Opening a Bank Account

To open a bank account, applicants submit the following documents to the bank:

- Passport size photographs
- Identity proof

- Address proof
- Opening amount

Once the bank opens the account, it provides the account number and chequebook to the account holder.

3.6 Types of Bank Accounts

Almost every commercial bank has more than one type of accounts. Some common types of accounts that we learned in the previous class are listed below:

3.6.1 Savings Account

These are the accounts opened in banks with the critical purpose of teaching the habit of saving amongst people. Savings accounts allow maximum flexibility to deposit any amount of their liking, making it easy and convenient for people.

This kind of account is popular with students, salaried individuals, and senior citizens. Savings accounts earn a nominal interest based on the period for which the account holder parks the funds.



3.6.2 Current Account

Business owners open these accounts to meet their requirement for a higher number of cash deposits and withdrawals. The vital thing to note in the case of current accounts is that they do not earn interest.

On the other hand, banks charge interest from account holders for an overdraft facility. When banks allow account holders to withdraw more than their account balance to meet their business requirements, it is known as an overdraft.

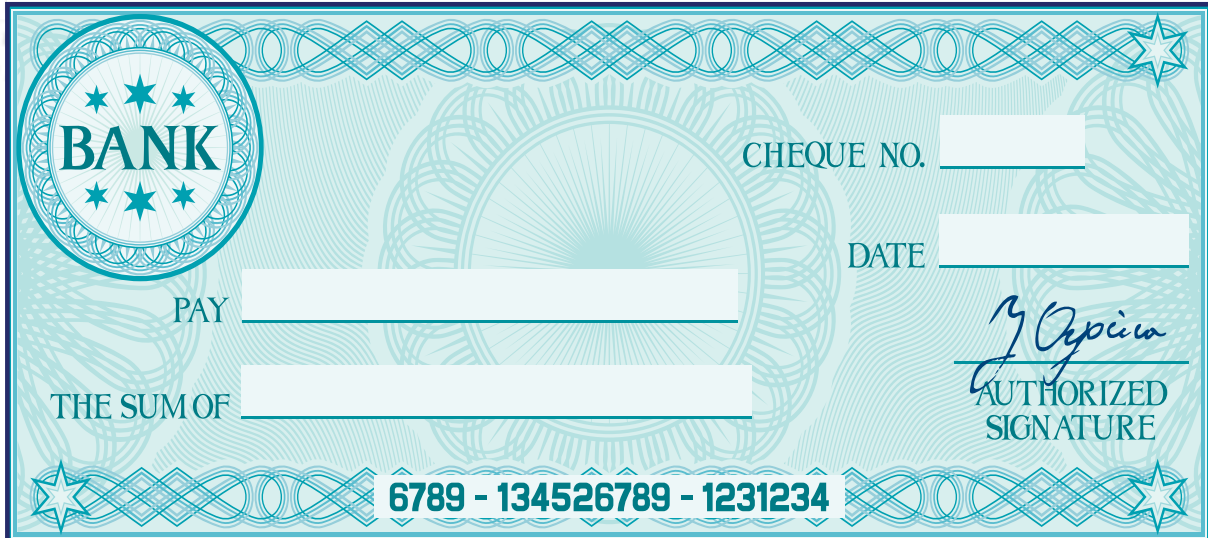
The key benefit of fixed deposit is that it provides a substantially higher interest rate than savings accounts.

An example of a Recurring Deposit is when a depositor plans to deposit a fixed amount of Rs.1000 per month for 24 months. Upon the completion of 24 months, the depositor gets back the base amount of Rs. 24,000, along with the interest amount.

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3.7 Cheque - An Instrument of Exchange

Cheques have been the most popular instrument for money transfer for many decades. Today, more and more people are using online banking. However, cheques continue to remain at the core of the banking industry.



Let us understand through a simple example of how cheques work. Let us suppose that Disha has Rs.25,000 in her bank account with Bank ABC. She wishes to pay Rs.5,000 to Arif using a cheque.

1. She issues a cheque of Rs.5,000 to Arif using Bank ABC's cheque book
2. Arif deposits the cheque in his bank, say Bank XYZ
3. Bank XYZ sends the cheque to Bank ABC
4. Bank ABC then sends the amount of Rs.5000 to Bank XYZ after confirming the cheque details
5. Bank XYZ then deposits Rs.5000 in Arif's account
6. Bank ABC reduces Rs.5000 from Disha's account

Each cheque contains some key elements, which include:

- Amount to pay in words as well as in numbers
- Name and signature of the person making the payment or the account holder
- Name of the person who will receive the payment
- The date on or after which the cheque is valid

Summary

- A bank is an institution where people deposit and withdraw funds. It acts as a 'vault' for the safekeeping of funds. Banks also provide 'loans' to the 'deposit holders'
- In ancient India, people used gold coins as a mode of currency and metal coins came into circulation around the 6th century BC
- The development of currency has been representative of the evolutionary level of an economy across ages
- Banking transactions through the internet is known as net-banking
- Banks play an essential role in the development of our nation
- Modern banking in India started in the form of the Bank of Hindostan in 1770
- After independence, the GoI and the RBI nationalised the Imperial Bank of India in 1955 and renamed it the State Bank of India (SBI). SBI is the oldest surviving bank of India
- The Reserve Bank of India (RBI) plays the role of a central bank in our country
- Commercial banks are classified into four different types, namely:
 - o Public sector banks
 - o Foreign banks
 - o Private sector banks
 - o Regional Rural Banks (RRBs)
- Banks offer Aadhaar card-based savings account opening
- Bank accounts are of the following types:
 - o Savings account
 - o Current account
 - o Fixed deposit
 - o Recurring deposit
- Today, more and more people are using online banking. However, cheques continue to remain at the core of the banking industry

Abbreviations

US	United States of America
SBI	State Bank of India
RBI	Reserve Bank of India
RRBs	Regional Rural Banks
PAN	Permanent Account Number (Issued by the Income Tax Department, PAN is necessary for filing income tax returns)
OTP	One Time Password

Unit 3: Self-Test Questions

Choose the correct option(s)

- Which of the following is ideal for depositors who wish to park their funds for the long term?
a. Recurring deposit b. Fixed deposit c. Current account
- Which amongst the following is NOT a commercial bank?
a. EXIM Bank b. Punjab National Bank c. State bank of India
- This account allows maximum flexibility to deposit any amount, making it easy and convenient for people.
a. Current Account b. Savings account c. Fixed deposit

Match the following

1	Public sector banks	A	An instrument for money transfer
2	Cheque	B	Coins to paper currency
3	Recurring deposit	C	Owned by the government
4	Evolution	D	Regular savings amongst people

Guess the words

- Allowance to withdraw more than account balance (O/_/E/_/_/R/_/_/T)
- For safekeeping of funds bank act as a (V/_/_/L/_/_)

Unit 4:

Security

Learning Objective

This unit's objective is to make students aware of RBI's role and digital banking concept. This unit focuses on:

1. Role and importance of the Reserve Bank of India (RBI)
2. Introduction to digital banking and the Digital India Initiative

Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom	Understand the role and importance of RBI	Describe the importance of RBI as a core banking institution	Enlist the functions performed by RBI	Interactive Lecture: Role and importance of RBI Activity: Discuss the role and importance of RBI with your classmates in a classroom session
	Appreciate the benefits of digital banking	Describe the concept and benefits of digital banking	State the various benefits of digital banking to consumers	Interactive Lecture: Concept and benefits of digital banking Activity: Discuss the various components with your classmates of digital payments mentioned under the Digital India Initiative

4. Reserve Bank of India — Role and Importance

Established in 1935 and nationalised in 1949, the Reserve Bank of India (RBI) is India's central bank. The bank issues currency in India and also destroys notes and coins that are not fit for use.

Apart from the issuance of currency, RBI performs various other essential functions that impact the development of the Indian economy in a significant way:

- RBI is the monetary management authority of India that regulates and maintains prices to keep inflation in check
- RBI is the banker and the debt manager to the GoI
- It is also the banker to the other banks in India
- It is the body for financial regulation and supervision in India
- RBI is responsible for foreign exchange management and foreign exchange reserve management
- RBI also supervises and regulates market operations, payment and settlement systems, and research and data dissemination

4.1 About NPCI

National Payments Corporation of India (NPCI) is a not-for-profit organisation building a robust, scalable and affordable payments infrastructure for India.

NPCI is an umbrella organisation for operating retail payments and settlement systems in India. It is an initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA)

The Company is focused on bringing innovations in the retail payment systems through the use of technology for achieving greater efficiency in operations and widening the reach of payment systems. The various shareholders of NPCI include Public Sector Banks, Private Sector Banks, Foreign Banks, Regional Rural Banks, Multi State Co-operative Banks, Payments Banks, Payments System Operators and Small Finance Banks.

4.2 Digital India and *Aatmanirbhar Bharat Abhiyan*

Digital India is a flagship programme launched by India's Government with a sole vision of the Indian economy's digital transformation.



Digital India has various digital initiatives under its fold, some of them are as follows:•
Digital Profile of India

- Digital Profile of India
 - o Aadhaar - Digital Identity
- Digital Governance
 - o eTaal - Growth in e-governance transactions per day
- Digital Platforms
 - o Aadhaar - Digital Identity
 - o Goods and Services Tax Network (GSTN)
 - o Government e-Marketplace (GeM)
 - o Digilocker
 - o Unified Mobile App for New-Age Governance (UMANG)
- Digital Payments
 - o Unified Payment Interface (UPI)
 - o Unstructured Supplementary Service Data (USSD)
 - o Bharat Quick Response code (QR)
 - o National Automated Clearing House (NACH)
 - o Immediate Payment Service (IMPS)
 - o National Electronic Toll Collection (NETC)
 - o RuPay
 - o Bharat Bill Payment System (BBPS)

 - o Bharat Interface for Money (BHIM) Application
 - o Aadhaar Enabled Payment System (AePS)
 - o Bharat Interface for Money (BHIM) Aadhaar Pay
- Digital Infrastructure
 - o BharatNet
 - o National Knowledge Network
 - o Meghraj
 - o National Centre of Geo-Informatics
- Digital Inclusion
 - o Common Service Centres (CSCs)
 - o Stree Swabhiman
 - o Rural BPOs
- *Aatmanirbhar Bharat Abhiyan*

4.2.1. Aatmanirbhar Bharat Abhiyan

Aatmanirbharta or self-reliance is an essential trait of a successful individual, a community, or a nation. Aatmanirbhar Bharat Abhiyan, or Self-reliant India Mission, is the leading policy from India's Government towards making India a global economic powerhouse.

Various features of this mission are:

- o Credit boost to farmers
- o Leveraging IT for healthcare
- o Access to the public distribution system (Ration)
- o Technology-driven systems - online education
- o Employment boost through MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act)
- o Measures for MSMEs
- o Reforming governance for ease of doing business
- o Corporate law measures
- o Other measures covering the financial sector, NBFCs, power sector, space sector, coal and mining sectors, civil aviation etc.

4.3 Introduction to Digital Banking



How often do we find people around us recharging mobile-phone plans or paying via mobile wallets such as Oxigen? Day-to-day payments and transactions happen without the use of paper money.

So, what is making these transactions cashless? It is digital banking!



With the vast expansion of the 4G network across India and the ever-increasing use of laptops and smartphones, digital banking has received a significant push. Today, most of the banks in our country offer to their customers the facility of digital banking.

Digital banking allows bank customers to avail banking services using the bank's website or a mobile app. These services include:

- Checking account balance
- Transferring funds to another account
- Ordering a cheque book
- Changing passcodes, etc.

As part of the Digital India initiative, digital banking has received an enormous impetus.

4.4 Understanding Digital Payments

As we have learned previously, account holders can conveniently avail banking services by accessing online banking on their laptops, smartphones, or tablet PCs. It has opened the doors to another very convenient service known as Digital Payments, also known as Online Payments.

Digital Payments refers to transferring an amount of money to another individual, business or organisation through the internet without the requirement to handle physical cash.



Digital Payments have led to a growing number of online shopping websites and mobile apps that let customers purchase their favourite products from the convenience of their homes.



4.5 Benefits of Digital Payments

The trend of digital payments has revolutionised the world of business and the lives of people. It has brought in a new era of the flexibility of convenience. Let us discuss the many benefits of digital payments.

Fast, easy and convenient	Digital payments can be made at any time of the day using just the smartphone, making these transactions extremely easy and convenient. One need not travel anywhere, and there is no cash handling required.
One-stop solution	We can use digital payments for various purposes, such as making bill payments, purchasing goods and services online, or sending money to a friend or relative. It is indeed a one-stop solution for many purposes.
Digital Record	A unique transaction ID backs each online/digital transaction. It makes digital payments fully secure transactions, and there is minimal risk involved.
Transparent Transactions	Since there is no cash handling involved, digital payments discourage black money. All transactions are transparent and tracked through unique transaction IDs.

Summary

- The Reserve Bank of India (RBI) was established in 1935 and nationalised in 1949
- RBI performs various other essential functions that impact the development of the Indian economy in a significant way
- NPCI, an initiative of RBI and IBA, is an umbrella organisation for India's operating retail payments and settlement systems
- Digital India is a flagship programme launched by India's Government with a sole vision of the Indian economy's digital transformation
- Digital India has various digital initiatives under its fold such as digital platforms and digital payments
- Aatmanirbhar Bharat Abhiyan, or Self-reliant India Mission, is the leading policy of the Indian Government towards making India a global economic powerhouse
- Digital banking allows the bank customers to avail banking services using the bank's website or a mobile app
- Account-holders can conveniently avail banking services by accessing online banking on their laptops, smartphones, or tablet PCs
- Digital Payments refers to transferring an amount of money to another individual, business or organisation through the internet without the requirement to handle cash
- Benefits of digital payments include:
 - o Fast, easy and convenient
 - o One-stop solution
 - o Digital record
 - o Transparent transactions

Abbreviations

RBI	Reserve Bank of India
GoI	Government of India
NPCI	National Payments Corporation of India
UPI	Unified Payment Interface
GSTN	Goods and Services Tax Network
GeM	Government e-Marketplace
UMANG	Unified Mobile App for New-Age Governance
NETC	National Electronic Toll Collection
BBPS	Bharat Bill Payment System
BHIM	Bharat Interface for Money
AePS	Aadhaar Enabled Payment System
CSC	Common Service Centre
BPO	Business Process Outsourcing
MSME	Micro, Small, and Medium Enterprise
NBFC	Non-Banking Finance Companies
USSD	Unstructured Supplementary Service Data
QR	Quick Response
NACH	National Automated Clearing House
IMPS	Immediate Payments Service

Unit 4: Self-Test Questions

Choose the correct option(s)

1. This bank issues currency in India and also destroys notes and coins that are not fit for use.
a. RBI b. UBI c. SBI
2. What has made digital banking possible?
a. The vast expansion of 3G Network
b. A vast expansion of 2G Network
c. A vast expansion of 4G Network
3. Digital payment helps to discourage the use of
a. Cashless transaction b. Black money c. Transparency

True or False

1. A unique transaction ID backs each digital transaction. ()
2. Digital Payments refers to transferring an amount of money to another individual with the help of cash. ()
3. Digital India is a programme launched by the Government of India with a vision to transform India into a digitally empowered economy and society. ()

Answer the following

1. List down the benefits of Digital Payments.

2. Digital banking allows the bank customers to avail banking services using the bank's website or a mobile app. List down some of the services.

Unit 5:

Modes of Digital Payments - Card Based

Learning Objective

The objective of this unit is to outline the card-based modes of digital payments and various channels for acceptance of card-based payments such as Point of Sale (PoS) and ATM machines. This unit focuses on:

- Understanding various kinds of bank cards
- Understanding PoS and mPoS
- Discussing various types of ATMs

Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom	Understand about types of bank cards	Describe the various types of bank cards	Appreciate the use and benefits of bank cards	Interactive Lecture: About Bank Cards Activity: Enlist the types of bank cards in use
	Explain the purpose and use of PoS	Understand the definition and benefits of PoS and mPoS	Enlist the benefits of PoS and mPoS while purchasing	Interactive Lecture: About PoS and mPoS Activity: Discuss the benefits of a PoS transaction with your classmates in a classroom session
	Discuss various types of ATMs	Describe the types and benefits of ATMs	State the benefits of ATMs	Interactive Lecture: Various types of ATMs Activity: Discuss the steps of a cash withdrawal from an ATM with your classmates in a classroom session

5. Modes of Digital Payments - Card Based

Digital payments done using plastic cards are known as card-based digital payments.

Let us understand the payments acceptance ecosystem before understanding the card-based digital payments.

5.1 Payments Acceptance Ecosystem

The Payments Acceptance Ecosystem generally comprises acquirer, issuer, payment gateway, and payment aggregators. The following section describes the four components that make up the payment acceptance ecosystem.

5.1.1 Acquirer

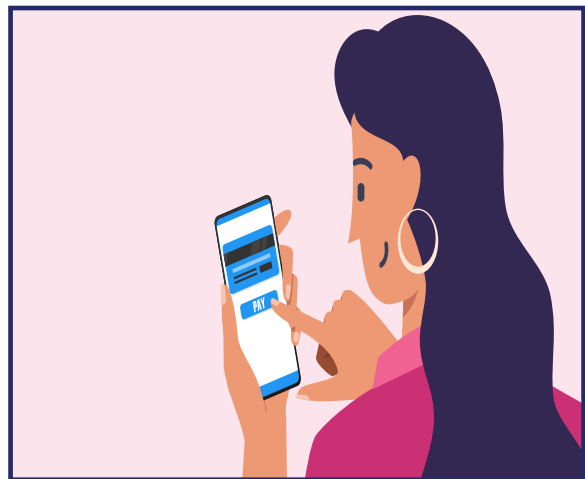
An acquirer is a bank that is in contract with merchants to accept card-based payments for goods and services. The acquirer installs the payments acceptance machine such as PoS to accept the cardholder payments at the merchant locations.

5.1.2 Issuer

An issuer is a bank that issues banking cards such as debit cards to its customers.

5.1.3 Payment Gateway

A payment gateway facilitates the transfer of information between a payment portal (such as a website, mobile phone or Interactive Voice Response) and the Front End Processor or acquiring bank. Payment gateways protect sensitive information and ensure that information is passed securely between the customer and the merchant as well as between the merchant and the payment gateway.



5.1.4 Payment Aggregator

A payment aggregator is a service provider that registers and enables e-commerce merchants to accept various payment modes and process e-commerce and mobile payment transactions, without the need of merchant setting up a separate bank account. An example of a payment aggregator in India is Razorpay. Other famous examples of payment aggregators are PayPal, PayTM, etc.

5.2 Use of Banking Cards

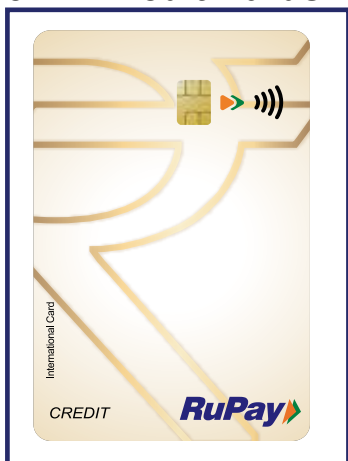
In the previous sections, we have learnt about the importance of banks and their various services. Apart from cheques, banking cards are also essential tools for making convenient transactions. In this section, we will learn more about them.

5.2.1 Debit Cards



Debit cards serve a dual purpose. They allow the account holders to perform banking transactions through the ATM, such as deposits, withdrawals and account information. They also act as debit cards allowing the cardholder to make cashless transactions at merchant establishments. The value of the purchase is deducted from the associated bank account.

5.2.2 Credit Cards



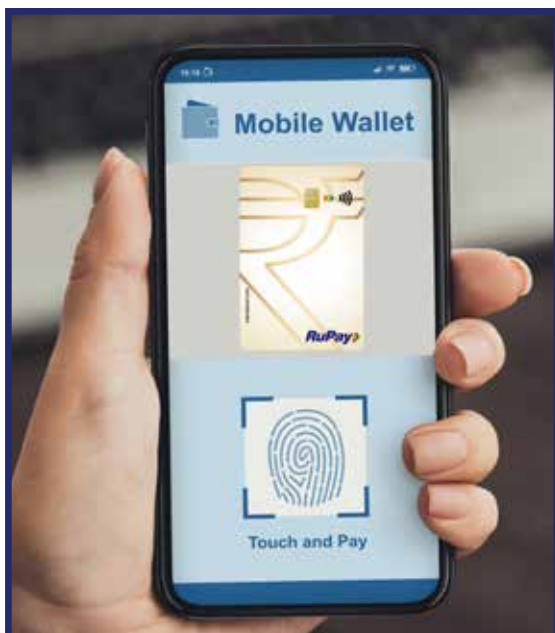
As the name suggests, credit cards are instruments that provide instant credit to cardholders. When a credit card is used for making a transaction, the amount is not deducted from the bank account. However, it is provided as credit by the issuing bank. The cardholder is provided with a time period, generally, a month, to pay back the amount to the bank. Banks charge interest on the amount that is not returned within the stipulated time.

5.2.3 Prepaid Cards



These are 'stored value' cards that are charged with a specific amount. The prepaid cardholder is allowed to transact for the value stored in the card. For example, if the card has a value of Rs.5000, once that value is used up for purchases, more value needs to be added to the card. A gift card is an excellent example of prepaid cards. Other examples of prepaid cards include Meal Card, Salary Card, Lending card etc.

5.2.4 Virtual Cards



Virtual credit cards are usually one-time non-physical cards issued by a bank or card provider to perform an online transaction.

Note that virtual cards exist in only digital form. They are used primarily by customers who wish to minimise their risk while making an online transaction, post which they expire automatically.

5.2.5 Co-branded Cards

Sometimes, banks collaborate with retailers or service providers to issue credit cards with specific benefits to cardholders. These cards carry the logos and branding of both the bank and the retailer. Thus, they are known as co-branded cards. These cards provide reward points to customers while shopping with them. For example, a petrol credit card. Every time a user uses it to purchase fuel, they receive redeemable reward points or cashback, a small percentage of the total bill.



5.3 Guidelines for the Use of Banking Cards

Instruments like debit, credit and prepaid cards indeed offer a high level of convenience while making transactions; however, all the same, it is also important to follow guidelines during their use.

- One must be observant while using an ATM card to withdraw cash. Ensure that there is no other person who may be watching while you enter the PIN
- Credit cards should be used only for convenience, and the cardholder must ensure to pay back the card dues in time to avoid the heavy interest
- Banking cards must be kept very safe and not allowed to get into the wrong hands to avoid misuse
- Card PIN numbers must not be shared with anyone

5.4 Various Channels for Acceptance of Card-Based Digital Payments



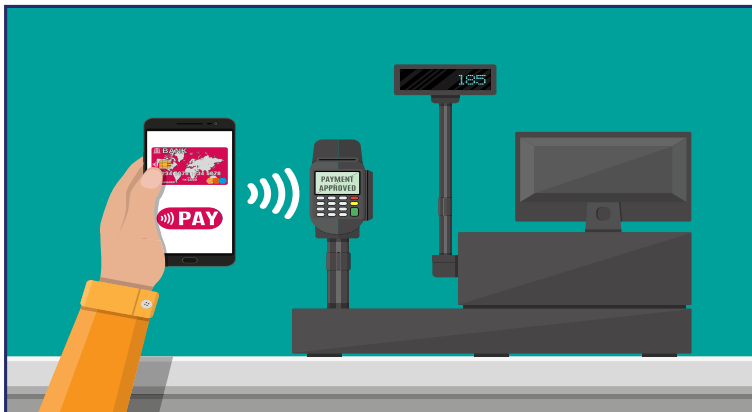
5.4.1 Point of Sales (PoS)

Point of Sales (PoS) is a technology that differentiates an old fashioned shop to a modern retail store.



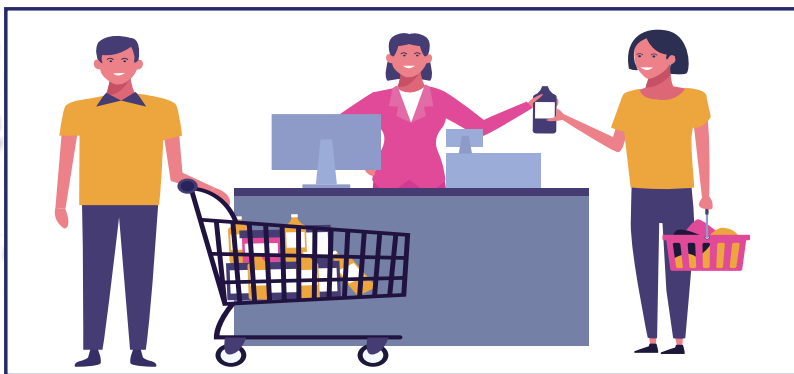
In old fashioned shops, shopkeepers used to keep all sales and inventory records on paper. At every sale transaction, shopkeepers noted down the details of the product and its price. To replenish the stocks and determine the sales figures, they referred to the paper register and calculated each time. It not only used to take time but was also prone to calculation errors.

Now imagine a system that automatically keeps track of each sale transaction and the customer's amount. The system makes life far more convenient for the shopkeeper while also providing accurate data at a button's press. That is the power of a PoS system.



Key Benefits of Using PoS

In the previous example, we observed that the use of PoS provides a host of benefits to the business owners.



Let us discuss them briefly:

Faster Process: PoS makes the sales process much faster, removing the rush at the cash counter. It makes the process far more efficient.

Inventory Management: The PoS system makes it possible to track product and inventory status at the click of a button. No more need for paper calculation.

Sales Report: It becomes easy and convenient to generate a sales report at any time. It enables the store owner to keep regular track of his income and profits.

5.4.2 mPoS – Mobile Point of Sales

Unlike traditional PoS, mPoS provides significant technological advantages. The mobile Phone-based application is a Java/iOS application designed for easy use by the merchant/retailer. Extremely intuitive, the menus and functions are easy to use.



Once the card is swiped, the application encrypts the data and sends the encrypted data to the server for authentication. A typical series of actions are as follows:

- Log in to the application (user id and password)
- Select a transaction type in mPOS application, e.g. Card Sale
- Select the amount and enter four digits of the card number (as in a traditional POS device)
- Swipe/Dip the card – (at this time, the application powers the card reader through Bluetooth/Audio jack and accepts the device's encrypted data). The PIN will be captured appropriately
- The transaction is sent for authorisation

5.4.3 Soft PoS

Soft PoS is an innovative payment acceptance segment, which uses 'Tap-on-Phone' technology. This technology allows merchants to accept payment from contactless cards directly on their Near Field Communication (NFC) enabled android mobile devices via software-based payment application, without any additional connected hardware.

This Tap-on-Phone technology has the same functionality as the regular PoS/mPOS for contactless payment acceptance. However, as the functionality can be directly enabled on the merchant mobile handset, this makes the product affordable and enables more extensive market penetration.

5.4.4 E-commerce Payment

As listed above, the online point of sale – e-commerce – is a kind of PoS system specially used for e-commerce transactions. These are transactions conducted over the internet through the use of online banking or banking cards.

As you may be aware, India's e-commerce industry is a multi-billion dollar industry with a vast customer base.

5.4.5 Automated Teller Machines (ATMs)



Gone are the days when one needed to spend an hour or more at a bank branch to withdraw cash. The advent of ATMs has revolutionised the world of banking. It is phenomenally easier for account holders to withdraw cash and do other banking transactions at their own convenient time.

ATM – Benefits to Banks

ATMs offer various benefits to banks. These include:

- Increases customer satisfaction as they can access bank's services 24x7
- Reduces crowding at bank branches as many cash and account-related services are handled at ATMs
- It helps in enhancing customer loyalty as ATMs act as additional channels to service customers
- With ATMs being interoperable, a bank with less number of ATMs can also have their customers use other banks' ATMs for various services.

ATM – Benefits to Customers

On the same lines, ATMs offer a host of benefits to the customers/account holders. These include:

- Reduced visits to a bank branch
- Shorter travel time as ATMs are situated nearby
- Convenient access to cash 24x7
- Additional services such as balance inquiry, mini statement, PIN change, etc.
- With ATM being interoperable, customers can visit any bank ATM to withdraw cash, balance Inquiry, PIN change, etc.

5.4.6 Types of ATM Deployments

Apart from the bank-owned and managed ATMs seen commonly, two other types of ATM deployments are common in our country, viz. White Label ATMs and Brown Label ATMs.

Let us understand the differences:

White Label ATMs (WLAs)	Brown Label ATMs (BLAs)
<ul style="list-style-type: none">• These machines are owned and operated by Non-banking financial Institutions authorised by RBI for operating WLA	<ul style="list-style-type: none">• Brown Label ATMs work on cost/revenue sharing concept
<ul style="list-style-type: none">• They do not have any specific bank's branding. However, some operators do have tie-ups with banks and display their logos along with the WLA logo	<ul style="list-style-type: none">• Hardware is owned by the service provider, while the sponsor bank provides the cash management and network connectivity
<ul style="list-style-type: none">• Sponsor bank provides the cash and facilitates settlement for transactions on WLAs	<ul style="list-style-type: none">• These ATMs carry the logo of the sponsor bank, so there is no difference for customers
<ul style="list-style-type: none">• Such ATMs are common in smaller and remote towns	<ul style="list-style-type: none">• The services offered are the same as a regular bank ATM

5.5 About RuPay Network and RuPay Card

RuPay is India's answer to international payment networks. National Payments Corporation of India developed and launched the RuPay domestic card payment network in 2012.

RuPay network provides a financial benefit to both people and banks because the banks pay relatively low service charges compared to international counterparts.



Summary

- Digital payments made using plastic cards are known as card-based digital payments
- Payments Acceptance Ecosystem generally comprises acquirer, issuer, payment gateway and payment aggregators
- Apart from cheques, banking cards are also essential tools for making convenient transactions
- Banking cards are of the following types:
 - o Debit cards
 - o Credit cards
 - o Prepaid cards
 - o Virtual cards
 - o Co-branded cards
- Point of Sale (PoS) is a system that automatically keeps track of each sale transaction and the customer's amount
- Key benefits of using PoS are:
 - o Faster process
 - o Inventory management
 - o Sales report
- Unlike traditional PoS, mPoS provides significant technological advantages
- Soft PoS is an innovative payment acceptance segment, which uses 'Tap-on-Phone' technology
- e-Commerce is a kind of PoS system specially used for e-commerce transactions
- ATMs offer various benefits to banks and customers
- Apart from the bank-owned and managed ATMs seen commonly, two other types of ATM deployments (i.e. White Label ATMs and Brown Label ATMs) are common in our country
- Rupay network provides financial benefits to both people and banks because the banks pay relatively low service charges compared to international counterparts

Abbreviations

PoS	Point of Sales
mPoS	Mobile Point of Sales
NFC	Near Field Communication
ATM	Automated Teller Machine
PIN	Personal Identification Number
SMS	Short Message Service
iOS	iPhone Operating System

Unit 5: Self-Test Questions

Choose the correct option(s)

- What is a PoS?
 - A system the generates goods at the sales point
 - A system that automatically keeps track of each sale transaction and the customer's amount
 - A system that generates money with the help of RBI
- These cards are the stored value cards
 - Debit Cards
 - Credit Cards
 - Prepaid Cards

True or False

- Soft PoS is an innovative payment acceptance segment, which uses 'Tap-on-Phone' technology. ()
- ATM'S offer benefits to customers but not to banks. ()

Identify the hidden terms

D	E	B	I	T	C	A	R	D	S
B	L	A	B	S	R	Y	A	I	G
K	V	N	N	H	E	K	S	G	T
M	I	K	K	F	D	H	D	I	P
L	N	S	I	K	I	T	A	T	M
O	G	T	U	L	T	U	H	A	A
U	H	P	T	Y	C	P	J	L	E
B	V	I	E	T	A	Q	K	W	Q
A	M	N	W	R	R	u	P	A	Y
O	R	T	Q	E	D	Z	T	R	H
D	C	E	A	T	S	X	R	I	A

Unit 6:

Modes of Digital Payments - Biometric-Based

Learning Objective

The objective of this unit is to outline the biometric-based modes of digital payments. This unit focuses on understanding:

1. Role and definition of UIDAI, Aadhaar and AePS
2. Purpose and benefits of Micro ATMs

Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom	Explain the significance of UIDAI, Aadhaar and AePS	Appreciate the critical role played by UIDAI, Aadhaar and AePS	Understand the role and importance of UIDAI, Aadhaar and AePS	Interactive Lecture: Role and importance of UIDAI, Aadhaar and AePS Activity: Discuss the role and importance of UIDAI with your classmates in a classroom session.
	Understand Micro ATMs	Understand the definition and benefits of Micro ATMs	Enlist the benefits of Micro ATMs	Interactive Lecture: About Micro ATMs Activity: Discuss the steps of cash withdrawal from a micro ATM with your classmates in a classroom session
	Explain the significance of BHIM Aadhaar Pay	Describe BHIM Aadhaar Pay, the solution for merchants	Identify the role of Aadhaar biometrics in BHIM Aadhaar Pay	Interactive Lecture: Significance of BHIM Aadhaar Pay

6. Modes of Digital Payments - Biometric-Based

Biometric-based digital payment systems include:

- Aadhaar Enabled Payment System (AePS)
- Micro ATMs
- Bharat Interface for Money (BHIM) Aadhaar Pay

6.1 Role of UIDAI

Biometric based digital payments were made possible after the Government of India formed the Unique Identification Authority of India (UIDAI) in January 2009.



As we have learnt in the previous sections, digital technology has made financial transactions far more straightforward and convenient. However, it is also essential that these transactions are secure. The authenticity of the persons making these transactions is verified.

UIDAI was created to issue Unique Identification numbers (UID), named “Aadhaar” to all India residents. The key objective of UID is to be robust enough to eliminate duplicate and fake identities and be verifiable and authenticable in a comfortable, cost-effective way.

6.2 Aadhaar Enabled Payment System (AePS)

The biometric authentication of Aadhaar numbers enables a payment system named Aadhaar Enabled Payment System (AePS) operated by NPCI. It is a payment service that has been introduced to subserve the goal of the Government of India and RBI's financial inclusion goal.

AePS empowers bank customers to access their Aadhaar enabled bank account to perform basic banking transactions like the following:

- Balance enquiry
- Cash deposit

- Cash withdrawal
- Aadhaar to Aadhaar funds transfer
- Mini Statement
- Digital payment through BHIM Aadhaar

6.2.1 AePS Features

AePS provisions various services to consumers. These include:

Financial Transactions:

- Balance Enquiry
- Cash Withdrawal
- Cash Deposit
- Fund Transfer
- Mini Statement
- BHIM Aadhaar

Non-Financial Transactions:

- Best Finger Detection
- eKYC
- Demographic Authentication

6.3 Micro ATMs – Perfect Solution for Rural and Hinterlands



The ATM machines that we commonly see in cities and towns are not available in the far-flung areas of our country. In fact, these are locations where even the bank branch may not be available.

For such areas, Micro ATMs are the perfect solution. These are handheld devices available with authorised banking correspondents (also known as bank *mitras*) allowing Aadhaar holders to perform basic banking transactions. Fingerprint and/ or Retina/ Iris of the customer is used to authenticate a customer. AePS is a key in driving financial inclusion in rural areas. Prior to AePS and UIDAI, people in the rural area were not having bank accounts at all or needed to travel long distances to access bank accounts. Today with the help of AePS, business correspondents are providing banking services at doorsteps.

Micro ATMs are portable and can be carried anywhere in just one hand, making them ideal for remote locations. Compared to a conventional ATM machine, a micro ATM can be purchased and activated at a fraction of the cost. Micro ATMs can also be made compatible with regional languages.

6.4 BHIM Aadhaar Pay - The Merchant Solution

BHIM Aadhaar Pay enables merchants to receive digital payments from customers over the counter based on Aadhaar biometrics authentication.

For BHIM Aadhaar Pay to work, the merchant needs to have an Android mobile with a BHIM Aadhaar app. They also require a certified biometric scanner attached to the USB port of a PoS, mPoS, or micro-ATM system. Customer should have their Aadhaar linked to their Bank Account.

When a customer purchases goods or services from merchant, all that a merchant needs to do is to enter Aadhaar number of customer, select the bank name, enter the amount and take biometric (fingerprint/Iris) of customer and transaction is done.

The screenshot displays the BHIM Aadhaar Pay app interface for a cashless payment. The screen is divided into two main sections. The left section contains the following fields: 'Consumer Bank' (HDFC), 'Consumer Aadhaar Number' (1111 2222 3333), and 'Amount (₹)' (5.01). Below these fields is an orange button labeled 'BHIM Aadhaar Pay'. The right section, titled 'Cashless Payment', displays transaction details: 'Transaction Amount: ₹ 5.01', 'Bank Name: HDFC', and 'Aadhaar Number: *****9491'. Below this is a circular fingerprint scanner icon. A text prompt reads 'Please place your finger when beep sound is heard.' At the bottom of the right section, there is a checkbox and the text: 'I Agree that Bank/UIDAI may share my details with each other for the purpose of authenticating my Aadhaar number.' The footer of the app shows 'Powered by NPCI' on both sides.

Summary

- Biometric-based digital payments were made possible after the GoI formed the Unique Identification Authority of India (UIDAI) in January 2009
- UIDAI was created to issue Unique Identification numbers (UID), named “Aadhaar”, to all India residents
- Biometric authentication of Aadhaar numbers enables a payment system named Aadhaar Enabled Payment System (AePS) operated by NPCI
- Micro ATMs are a perfect solution for hinterlands of India where accessibility is an issue
- AePS provisions various financial services to consumers like balance enquiry, cash withdrawal, cash deposit, mini statement, fund transfer, etc.
- BHIM Aadhaar Pay enables merchants to receive digital payments from customers over the counter based on Aadhaar and biometric of customers

Abbreviations

UIDAI	Unique Identification Authority of India
UID	Unique identity
AePS	Aadhaar Enabled Payment System
ATM	Automated Teller Machines
BHIM	Bharat Interface for Money
C2B	Consumer to Business
C2G	Citizen to Government
NPCI	National Payments Corporation of India

Unit 6: Self-Test Questions

Choose the correct option(s)

1. What are the critical objectives of UIDAI?
 - a. Eliminate fake and duplicate identities
 - b. Authenticate individuals in a comfortable and cost-effective way
 - c. Identify the money deposited in the bank and dispatch debit cards
 - d. Eliminate the money generated at PoS to complete the transaction
2. Which of the following is needed to enable BHIM Aadhaar Pay?
 - a. Android mobile
 - b. BHIM Aadhaar app
 - c. Certified Biometric Scanner
 - d. Life-insurance

True or False

1. Digital technology has made financial transactions far more straightforward and convenient. ()
2. Compared to a conventional ATM, a micro ATM cannot be purchased and activated at a fraction of the cost. ()
3. AePS empowers bank customers to access their Aadhaar enabled bank account to perform basic banking transactions. ()

Answer the following

1. What are the biometric-based digital payment systems in India?

2. Write about BHIM Aadhaar Pay in your own words:

Unit 7:

Modes of Digital Payments - Mobile Based Banking and Others

Learning Objective

This unit aims to enable students to learn about various digital payments, including internet banking, mobile banking, and mobile wallets. This unit focuses on:

1. Various forms of digital payments, including internet banking and mobile banking
2. Digital Platforms: UPI and mobile wallets
3. USSD and its application

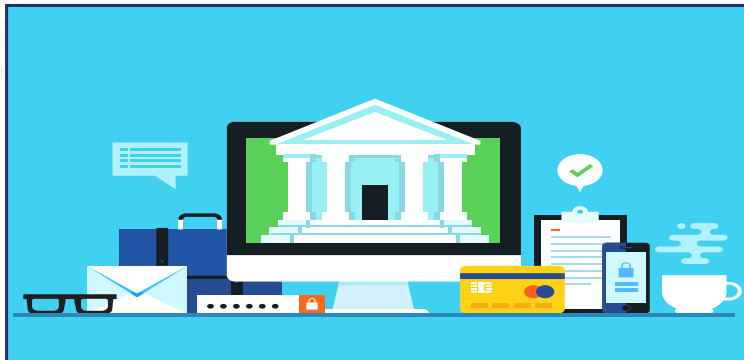
Learning Outcomes:

Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Class-room	Describe the various options of internet banking	Explain internet banking and differentiate between its various types such as NEFT, RTGS, IMPS and NACH	Develop an understanding of various forms of internet banking services	Interactive Lecture: Internet banking services such as NEFT, RTGS, IMPS and NACH Activity: Discuss the steps involved in making a transaction using online banking with your classmates in a class-room session
	Describe mobile banking	Explain the concept of mobile banking	Appreciate the role of mobile banking in making transactions simpler	Interactive Lecture: Mobile banking Activity: Discuss the various features of the banking app with your classmates in the classroom session
	Define UPI and mobile wallets	Enlist the various types of mobile wallets	Appraise the importance of UPI and mobile wallets	Interactive Lecture: UPI and mobile wallets Activity: Enlist the benefits of a popular mobile wallet based on your observation and discussion with a user
	Define and understand the application of USSD	Describe the concept and scope of USSD	State the purpose and application of USSD	Interactive Lecture: Purpose and application of USSD

7. Modes of Digital Payments- Mobile Based Banking and Others

7.1 Internet Banking

Internet banking allows us to do banking activities over the internet using a laptop, tablet or smartphone.



The key advantage of transferring an amount using internet banking is that the account holder does not require cheques. They can transfer the amount to a beneficiary at a time of their convenience. However, such transactions are bound by the terms and conditions laid down by the Reserve Bank of India (RBI).

When we transfer an amount using Internet Banking, we can do so through various methods, including:

- National Electronic Fund Transfer (NEFT)
- Real-Time Gross Settlement (RTGS)
- Immediate Payment Service (IMPS)

Let us learn more about these services one by one.

7.1.1 National Electronic Fund Transfer (NEFT)

National Electronic Funds Transfer (NEFT) is a nation-wide centralised payment system owned and operated by the Reserve Bank of India (RBI). The payment mode enables companies, firms, corporates and individuals to transfer funds electronically to other companies, firms, corporates and individuals within the country.

Before making an NEFT transfer, the account holder needs to register the beneficiary account details, including account holder name, account type (savings etc.), account number and IFSC code*. NEFT transactions are subject to specific time frames as laid down by the RBI and presently operate in batches of half-hourly intervals throughout the day.

NEFT offers the following key advantages:

- It is available round the clock on all days of the year
- Near-real-time funds transfer to the beneficiary account and settlement in a secure manner
- Pan-India coverage through an extensive network of branches of all types of banks

- The sender receives confirmation via SMS /e-mail on credit to the receiver's account

*IFSC stands for Indian Financial System Code. It is an 11 digit alphanumeric code that is unique to a particular branch of a particular bank.

7.1.2 Real-Time Gross Settlement (RTGS)

RTGS is a real-time settlement system which allows for fast processing of money transfer between any two accounts. 'Real Time' means the processing of instructions at the time they are received; 'Gross Settlement' means that the settlement of funds transfer instructions occurs individually. The payments made via RTGS are final and irrevocable.

The RTGS system is primarily meant for large value transactions. The minimum amount to be remitted through RTGS is ₹ 2,00,000/- with no upper limit.

RTGS offers the following key advantages:

- Safe and secure system for funds transfer
- No cap on the maximum amount being transferred
- Available on all days on a 24x7x365 basis
- Real-time transfer of funds to the beneficiary account

7.1.3 Immediate Payment Service (IMPS)

IMPS is a product made available by the Reserve Bank of India (RBI) and National Payments Corporation of India (NPCI). It allows for 24x7 instant funds transfer service that can be accessed on multiple channels like Mobile, Internet, ATM and SMS.

The key feature of IMPS is that it is available at all times. The transaction fee for IMPS is nominal, and it allows a transfer limit of Rupees 2 lakhs per transaction.

IMPS offer the following key advantages:

- Fast, safe and secure way to send and receive funds
- Works on both net-banking and mobile platforms and its services are available at all times, including holidays
- Funds can be transferred simply by providing the mobile no. and Mobile Money Identifier (MMID). Bank account numbers are not necessary
- Transfer confirmation is sent by the bank to both the payer and the payee when the transfer is complete
- Fund transfer limit currently is Rupees 2 lakh per transaction. The minimum allowed transaction value in IMPS is Rupee 1

7.2 Mobile Banking – Bank in Pocket



The latest technologies in the form of powerful mobile and high-speed internet have made things easy and convenient for banking customers. Many services for which customers needed to visit the branch can now be availed through the convenience of one's mobile.

Most popular banks today offer the facility of Mobile Banking. It is offered in the form of a dedicated and secure app that provides the following key services:

- Checking of the account balance
- Making funds transfer
- Bill payments and card payments
- Service requests such as ordering cheque books

7.2.1 Advantages of Mobile Banking

Mobile Banking offers various advantages in the form of:

- 24x7x365 access to banking services
- Saves time as well as money by avoiding physical visits
- Better control over account and finances
- Reduces paperwork by virtue of digital technology

7.2.2 Do's and Don'ts while Using Mobile Banking

Do's	Don'ts
Use only the bank authorised mobile banking app	Do not fall prey to fake apps that may steal user identity
Keep a strong password/PIN number	Do not share the PIN number or OTP with anyone
Keep your mobile free from malware	Do not install apps from non-secure sources

7.3 Unified Payments Interface (UPI)

UPI is a system developed by the National Payments Corporation of India (NPCI). It combines multiple bank accounts' power into a single mobile app. It is a one-stop solution allowing for a host of digital banking options and merchant payments.

In simple words, UPI ID is simply a payment address, using which you can send or receive money using any UPI App. A UPI ID is unique to a user just like your email address (example:abcd@upi).



7.3.1 Key Features of UPI

Some key features of the Unified Payments Interface are listed below:

- Make easy, safe and instant transactions
- Access multiple bank accounts from a single mobile application
- Send and receive money seamlessly across UPI apps regardless of the UPI app you have
- Make direct bank payments using UPI ID or UPI QR
- Use your UPI ID to send or receive money across 200 banks, 21 third-party apps and BHIM App
- Single click authentication using UPI PIN
- Make payments for daily expenses, e-commerce, bill payments and more

7.4 Bharat Interface for Money (BHIM)

Bharat Interface for Money, popularly known as BHIM, is a digital app that helps us make simple, easy and quick payments with Unified Payments Interface (UPI).



Some key features of BHIM include:

- Send money
- Request money
- Scan QR code and pay
- Bill payments
- UPI AutoPay
- Biometric Authentication
- Supports 20 languages
- Balance Enquiry

7.4.1 Steps for First Time BHIM User

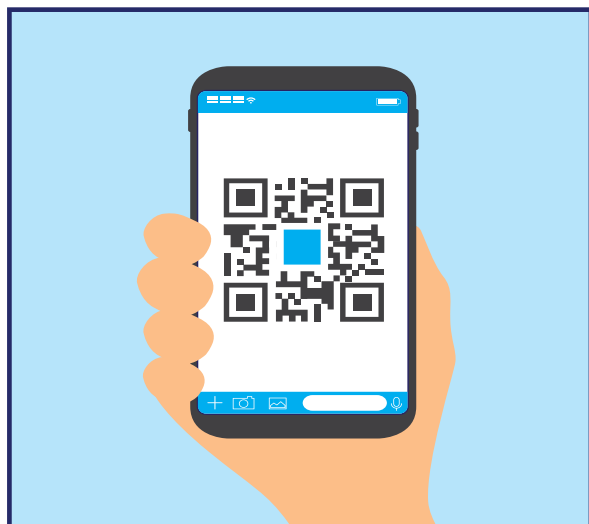
1. Download and install BHIM app from the Google Play Store/Apple App Store depending on the device you are using
2. Select your preferred language from the list
3. Read the message for access which the app would require and click on Proceed
4. Allow access for necessary services to the app
5. Select the SIM card which has the mobile number registered with your respective bank you wish to link with BHIM
6. Set the application passcode required to use the app
7. Link your bank account using the bank account option
8. Set your UPI PIN by providing the last six digits of your debit card and the expiry date of the debit card
9. Click on Send option from the home screen of the app and enter the UPI ID. Select from your contact list or by entering the Account/IFSC code. You can also scan the QR of the person to whom you want to send money

10. Enter the details for Amount, Account to Debit and click on Send

11. Enter the UPI Pin you set earlier to authenticate the transaction

Note: Do not share your OTP, debit card details and UPI pin number with anyone

7.5 QR Codes - An Easy Way to Pay



Quick Response (QR) code is a type of barcode*. The UPI interface makes it extremely easy and convenient to make payments using the QR codes. While accompanying our parents to the market, we may have observed them making payments through QR codes. Let us see how that works:

1. The customer scans the QR code placed at merchant locations or generated on PoS
2. Customer checks the transaction details like amount, merchant name, etc. and confirms
3. The customer then enters the UPI PIN
4. Success confirmation is received on the app along with SMS on mobile

*A barcode is an optical label for physical goods and items that a barcode reader can only read

7.6 Mobile Wallets, the Smart Way to Make Payments



In today's time, if a person walks out to the market without his cash and banking cards, yet he/she can purchase things of choice, how is that made possible?

As the name suggests, a mobile wallet is a virtual wallet in the form of a mobile app that allows you to make purchases simply by scanning the QR code at the merchant establishment. A popular example of a mobile wallet in use today is PayTM.

Key benefits of using mobile wallets

- Make payments using mobile, without carrying cash or cards
- Make utility bill payments conveniently
- Transactions are fast, and both the sender and receiver receive confirmation instantly
- Secure platforms based on authenticated users

7.7 Unstructured Supplementary Service Data (USSD)

Many areas and sections of people in our country do not have access to smartphones and high-speed internet. Unstructured Supplementary Service Data (USSD) is a technology that comes as a saviour in such situations.



USSD allows users without a smartphone or data/internet connection to use facilities such as mobile banking by using the *99# code. This innovative technology's key objective is to allow financial inclusion of the less privileged sections of society and integrate them into mainstream banking.

The USSD service is available in 12 languages, making this service accessible to maximum population sections. The languages included in this service are English and other Indian languages such as Hindi, Tamil, Bengali, and Kannada.

Essential services offered through USSD-based banking include:

- Checking account balance
- Generating account statements
- Making funds transfers

7.8 Other Modes of Payments

7.8.1 National Automated Clearing House (NACH)

The National Payments Corporation of India (NPCI) offers to banks, financial institutions, Corporates and, Government(s) a service termed as "National Automated Clearing House (NACH)" which includes both Debit and Credit.

NACH (Debit) and NACH (Credit) aims at facilitating interbank high volume, debit/credit transactions, which are repetitive in nature, electronically using the NPCI service. NACH is an electronic funds transfer system that is used for transactions of a regular nature. In the case of NACH, an account holder is able to set up instructions of a specific amount transfer to occur at regular intervals, say every month.

It is used for making bulk transactions towards the distribution of subsidies, dividends, interest, salary, pension etc. and also for bulk transactions towards the collection of payments pertaining to telephone, electricity, water, loans, investments in mutual funds, insurance premium etc.

NACH is of three types:

NACH Debit: A specific amount is deducted and transferred to the beneficiary's account each month according to instructions. Examples include loan payments, mutual fund investments etc.

NACH Credit: A specific amount is received and credited on a regular basis. Example: Monthly salary paid to an employee

Aadhaar Payments Bridge System (APBS): APBS caters to making payments on the basis of Aadhaar number of the customers. The Aadhaar number becomes the financial address of the customer and facilitates the movement of the customers from one bank to another if they desire so. The APBS also sub-serves the goal of Financial Inclusion and facilitates the Government to transfer subsidies directly to the people through their bank accounts. NACH offers the following key advantages:

- Helps improve customer relationships by creating a regular framework of payments
- Reduces paper use and encourages online transactions
- Reduces the risk of delayed payments due to fixed schedule
- Helpful in the payment of insurance premium, loan instalments, credit card payments, mutual funds etc.
- Distribution of government subsidies to the beneficiary account

7.8.2 Bharat Bill Payment System (BBPS)



The traditional way of paying bills amongst consumers was to visit multiple centres/ touch-points to pay their utility and recurring bills. The consumers had to stand in long queues or visit multiple biller websites to pay their bills.

This entailed the consumer spending nearly 4-5 hours for paying various bills and also reconcile payments made for various bills. Some of them had to create separate files to keep record of the various bills paid. The payment of utility bills like electricity, telecom, Direct-to-Home (DTH) television, gas, water bills and other recurring payments like taxes, loan repayments, school, college fees, etc. was a nightmare for the common person.

National Payments Corporation of India, under the guidance of Reserve Bank of India (RBI) conceptualised the idea of having a one-stop solution for payment of all recurring bills anytime, anywhere. Bharat Bill Payment System was launched in the year 2017, wherein consumer could pay all his/her recurring payments at one-place via any of their preferred banking app, payment app or nearby agent/kirana shop. Consumers could now make all their recurring payments under one roof conveniently.

Summary

- The key advantage of transferring an amount using internet banking is that the account holder does not require cheques
- National Electronic Fund Transfer (NEFT) is a pan-India centralised payment system. The Reserve Bank of India owns and operates the system
- Real-Time Gross Settlement (RTGS) is a real-time settlement system which allows for fast processing of money transfer between any two accounts
- Immediate Payment Service (IMPS) is a product made available by the Reserve Bank of India (RBI) and National Payments Corporation of India (NPCI). It allows for 24x7 instant funds transfer service that can be accessed on multiple channels like Mobile, Internet, ATM and SMS
- Most popular banks today offer the facility of Mobile Banking in the form of a dedicated and secure app
- UPI is a system developed by the National Payments Corporation of India (NPCI). It combines multiple bank accounts' power into a single mobile app
- Bharat Interface for Money or popularly known as BHIM, is a digital app that helps us make simple, easy and quick payments with Unified Payments Interface (UPI)
- QR code is another easy way to pay. It is a type of barcode
- A mobile wallet is a virtual wallet in the form of a mobile app that allows us to make purchases only by scanning the QR code at the merchant establishment
- USSD allows users without a smartphone or data/internet connection to use facilities such as mobile banking by using the *99# code
- National Automated Clearing House (NACH) is an electronic fund transfer system. It is used for transactions of a regular nature. It is of three types, namely, NACH Debit, NACH Credit, and APBS
- Bharat Bill Payment System (BBPS) is a one-stop solution for the payment of all utility and recurring bills anytime, anywhere

Abbreviations

RBI	Reserve Bank of India
NEFT	National Electronic Fund Transfer
RTGS	Real-Time Gross Settlement
IMPS	Immediate Payment Service
NEFT	National Electronic Funds Transfer
IFSC	Indian Financial System Code
UPI	Unified Payments Interface
BHIM	Bharat Interface for Money
QR Codes	Quick Response Codes
PIN	Personal Identification Number
OTP	One Time Password
USSD	Unstructured Supplementary Service Data
NACH	National Automated Clearing House
NPCI	National Payments Corporation of India
MMID	Mobile Money Identifier
APBS	Aadhaar Payments Bridge System
BBPS	Bharat Bill Payment System
DTH	Direct-to-Home

Unit 7: Self-Test Questions

Choose the correct option(s)

1. It allows for 24x7 instant funds transfer service to access multiple channels like Mobile, Internet, ATM and SMS.
a. NEFT b. IMPS c. RTGS
2. It combines multiple bank accounts' power into a single mobile app
a. NACH b. UPI c. AePS
3. Which of the following bills can be quickly paid using BBPS?
 - a. School fees
 - b. Electricity bill
 - c. Water bill
 - d. All of the above

True or False

1. UPI is a one-stop solution allowing for a host of digital banking options and merchant payments. ()
2. Transfers made via RTGS have an amount cap. ()
3. BBPS cannot help in paying the gas bill. ()

Answer the following

1. Essential services offered through USSD-based banking

2. What are the features of BHIM?

3. Describe about UPI in your own words:

Answer Key

Unit 1	Choose the correct option	1. c. Army Regiment 2. c. A team works towards a common purpose, but a group does not
	Fill in the blanks	1. a. Effective 2. b. Communicate 3. b. Differences
	True or False	1. False 2. True 3. False
Unit 2	Choose the correct option	1. a. Financial literacy helps us make intelligent financial decisions 2. d. Car
	Fill in the blanks	1. a. Proof of cash sales 2. c. Han Dynasty
Unit 3	Choose the correct option	1 - b. Fixed deposit 2 - a. EXIM Bank 3 - a. Current Account
	Match the following	1. to C 2. to A 3. to D 4. to B
	Guess the word	1. OVERDRAFT 2. VAULT
Unit 4	Choose the correct option	1. a. RBI 2. c. The vast expansion of 4G network 3. b. Black money
	True/False	1. True 2. False 3. True

Unit 5	Choose the correct option	1 b. A system that automatically keeps track of each sale transaction and the customer's amount 2 c. Prepaid Cards
	True/False	1. True 2. False
	Identify the Hidden Terms	1. Debit Cards 2. Banks 3. PIN 4. Credit Cards 5. ATM 6. Digital
Unit 6	Choose the correct option	1. a and b 2. a, b, and c
	True/False	1. True 2. False 3. True
Unit 7	Choose the correct option	1. b. IMPS 2. b. UPI 3. d. All of the Above
	True or False	1. True 2. False 3. False



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