

IIBF & NISM Adda

**Certificate Examination in  
Digital Banking**

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**Compiled by**

**Srinivas Kante B.Tech, CAIIB**

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## About Certificate Examination in Digital banking

### IIBF Certificate Examination

#### OBJECTIVE:

#### EXAMINATION OBJECTIVE:

The course on 'Digital Banking' is intended to provide practicing bankers a sound foundation in the digital banking products such as Cards, ATMs, Mobile and Internet Banking and PoS. This will make them familiar with relevant aspects such that they could help in rendering improved customer service and also will help them in properly guiding the customers as and when needed.

#### ELIGIBILITY:

1. Members and Non-Members of the Institute
2. Candidates must have passed the 12th standard examination in any discipline or its equivalent

#### SUBJECT OF EXAMINATION: Digital Banking

PASSING CRITERIA: Minimum marks for pass in the subject is 50 out of 100

EXAMINATION FEES : Particulars	For Members	For Non- Members
First attempt Subsequent each attempt	Rs.1,000/- *	Rs.1,500/- *

#### MEDIUM OF EXAMINATION :

Examination will be conducted in English only.

#### PATTERN OF EXAMINATION:

- (i) Question Paper will contain 120 objective type multiple choice questions for 100 marks.
- (ii) The examination will be held in Online Mode only
- (iii) There will NOT be negative marking for wrong answers.

#### DURATION OF EXAMINATION:

Time will be of 2 hours.

EXAM CENTRES:  
Examination will be conducted on pre-announced dates published on IIBF Web Site. Institute conducts examinations on a regular basis, however periodicity of the examination may be changed depending upon industry.

Examination centres will be available on the website. (Institute will conduct examination in those centres where more candidates.)

#### G FOR EXAMINATION

Candidates should be registered online from the Institute's website [www.iibf.org.in](http://www.iibf.org.in). The last date for registration will be published on IIBF website.

It is mandatory for all the Institute's examinations/courses to attach / submit a copy of any documents containing Name, Photo and Signature at the time of registration of application without the same shall be liable to be rejected.

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1) Photo I / Card issued by Employer or 2) PAN Card or 3) Driving Licence or 4) Election Voter's I / Card or 5) Passport 6) Aadhaar Card

#### **STUDY MATERIAL / COURSEWARE**

The Institute has developed a courseware to cover the syllabus. The courseware (book) for the subject/s will be available at outlets of publisher/s. Please visit IIBF website [www.iibf.org.in](http://www.iibf.org.in) under the menu "Exam Related" for details of book/s and address of publisher/s outlets. Candidates are advised to make full use of the courseware. However, as banking and finance fields are dynamic, rules and regulations witness rapid changes. Therefore, the courseware should not be considered as the only source of information while preparing for the examinations. Candidates are advised to go through the updates put on the IIBF website from time to time and go through Master Circulars / Master Directions issued by RBI and publications of IIBF like IIBF Vision, Bank Quest, etc. All these sources are important from the examination point of view. Candidates are also to visit the websites of organizations like RBI, SEBI, BIS, IRDAI, FEDAI etc. besides going through other books & publications covering the subject / exam concerned etc. Questions based on current developments relating to the subject / exam may also be asked.

#### **Cut-off Date of Guidelines / Important Developments for Examinations**

The Institute has a practice of asking questions in each exam about the recent developments / guidelines issued by the regulator(s) in order to test if the candidates keep themselves abreast of the current developments. However, there could be changes in the developments / guidelines from the date the question papers are prepared and the dates of the actual examinations.

In order to address these issues effectively, it has been decided that:

- (i) In respect of the examinations to be conducted by the Institute for the period February to July of a calendar year, instructions / guidelines issued by the regulator(s) and important developments in banking and finance up to 31st December will only be considered for the purpose of inclusion in the question papers.
- (ii) In respect of the examinations to be conducted by the Institute for the period August to January of a calendar year, instructions / guidelines issued by the regulator(s) and important developments in banking and finance up to 30th June will only be considered for the purpose of inclusion in the question papers.

The table given below further clarifies the situation.

#### **Cut-off Date of Guidelines / Important**

##### **Particulars**

##### **Developments for Examination/s**

For the examinations to be conducted by the Institute for the period February 2018 to July 2018

##### **Developments for Examination/s**

31st December 2017

30th June 2018

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# Syllabus

## MODULE - A

### DIGITAL BANKING PRODUCTS

Introduction

Need for Digital Banking Products

Customer Education for Digital Banking Products

#### CARDS

Overview and brief history

Various types of cards

Product features

#### EMV technology

New Technologies – Tap and Go, NFC, etc

Approval Processes for Cards

Profitability of Cards

Back End operations

Recovery and Follow up

#### ATMs

Overview and Brief History

Product Features

Instant Money Transfer Systems

Various Value-Added Services (eg., bill payments, donations, etc)

Proprietary, Brown Label and White Label ATMs

ATM Network Planning – Onsite / Offsite

Security and Surveillance of ATM Sites

Profitability of ATMs

Risk Management and Frauds

Back End Operations and Technology

### CASH DEPOSIT MACHINES

Overview and Brief History

Product Features

CDM Network Planning – Onsite / Offsite

Profitability of CDMs

Risk Management and Frauds

Back End Operations and Technology

### CASH RE-CYCLERS

Overview

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net Banking Integration with e-Commerce Merchant sites

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## **POS TERMINALS**

Overview and Brief History

Product Features

Approval processes for POS Terminals

Profitability of POS business Risk Management and Frauds

Back End Operations and Technology

## **MODULE - B**

### **BRANCHLESS BANKING**

Objectives

Introduction

Financial Inclusion – Logic and logistics

Vehicles for Financial Inclusion

Business Correspondents / Business facilitators

Digital Banking Products for Financial Inclusion

## **MODULE - C**

### **MARKETING OF DIGITAL BANKING PRODUCTS**

Objectives

Introduction

Product Planning

Structure for Marketing Digital Banking Products

Sales delivery to customers

Concept of e-Galleries

After sales service to customers

Marketing for Financial Inclusion

Dangers of Mis-selling

Use of analytics in marketing Digital Banking Products

## **MODULE - D**

### **PAYMENT SYSTEMS**

Overview of global payment systems

Overview of domestic payment systems

RuPay and RuPay Secure

Immediate Payment Service (IMPS)

National Unified USSD Platform (NUUP)

National Automated Clearing House (NACH)

Aadhaar Enabled Payment System (AEPS) e-KYC

Cheque truncation System (CTS)

National Financial Switch (NFS)

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## INDEX

S.No	Contents	Page No
01	Introduction	005
02	Short Notes on Anti Money Laundering	008
03	FATF	012
04	FIU-IND	019
05	Short Notes on KYC	020
06	Recollected Question's	037
07	MCQs	039
08	Test 2	064
09	Important Points	067
10	Case Study	069
11	Additional Information	071
12	RBI Annex I	116
13	RBI Annex II	119
14	RBI Annex III	127
15	Glossary	131

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# Digital Banking

**1. Digital banking** is the move to online banking where banking services are delivered over the internet. The advantages for banks and customers are providing more convenient and faster banking services. The shift from traditional to digital banking has been gradual and should be rather described in degrees of service digitization than through a categorization into yes and no. It involves high levels of process automation and web-based services and may include APIs enabling cross-institutional service composition to deliver banking products and provide transactions. It provides the ability for users to access financial data through desktop, mobile and ATM services

## 2. Digital India

Digital India is a campaign launched by the Government of India to ensure that Government services are made available to citizens electronically by improved online infrastructure and by increasing Internet connectivity or by making the country digitally empowered in the field of technology.

It was launched on 1 July 2015 by Prime Minister Narendra Modi. The initiative includes plans to connect rural areas with high-speed internet networks. Digital India consists of three core components. These include:

- The creation of digital infrastructure
- Delivery of services digitally
- Digital literacy

Major Advantages of Digital India:

- i. Creation of Digital Infrastructure and Electronic Manufacturing in Native India.
- ii. Digital Empowerment of Native Indian People.
- iii. Delivery of all Government Services electronically (E-Governance).
- iv. A Digital Identification which will verify the end user.
- v. A Mobile for worldwide access to all services.
- vi. A Bank account for Immediate Benefit Transfers of subsidies and payments.
- vii. The program also aims to eliminate all electronics imports from foreign countries by 2020 and make India a electronics manufacturing super power.

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ch will be provided through this desire effort are Digital  
e-sign and nationwide scholarship portal.  
ot of jobs.  
y; both large and small enterprises.

virtual process that includes online banking and beyond. As an end-to-end : encompass the front end that consumers see, the back end that bankers d admin control panels and the middleware that connects these nodes. lld facilitate all functional levels of banking on all service delivery platforms. all the same functions as a head office, branch office, online service, bank nachines.

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The reason digital banking is more than just a mobile or online platform is that it includes middleware solutions. Middleware is software that bridges operating systems or databases with other applications. Financial industry departments such as risk management, product development and marketing must also be included in the middle and back end to truly be considered a complete digital bank. Financial institutions must be at the forefront of the latest technology to ensure security and compliance with government regulations.

4. The earliest forms of digital banking trace back to the advent of ATM machines and cards launched in the 1960s. As the internet emerged in the 1980s with early broadband, digital networks began to connect retailers with suppliers and consumers to develop needs for early online catalogues and inventory software systems.

By the 1990s the Internet emerged and online banking started becoming the norm. The improvement of broadband and ecommerce systems in the early 2000s led to what resembled the modern digital banking world today. The proliferation of smartphones through the next decade opened the door for transactions on the go beyond ATM machines. Over 60% of consumers now use their smartphones as the preferred method for digital banking.

The challenge for banks is now to facilitate demands that connect vendors with money through channels determined by the consumer. This dynamic shapes the basis of customer satisfaction, which can be nurtured with Customer Relationship Management (CRM) software. Therefore, CRM must be integrated into a digital banking system, since it provides means for banks to directly communicate with their customers.

There is a demand for end-to-end consistency and for services, optimized on convenience and user experience. The market provides cross platform front ends, enabling purchase decisions based on available technology such as mobile devices, with a desktop or Smart TV at home. In order for banks to meet consumer demands, they need to keep focusing on improving digital technology that provides agility, scalability and efficiency.

5. A study conducted in 2015 revealed that 47% of bankers see potential to improve customer relationship through digital banking, 44% see it as a means to generate competitive advantage, 32% as a channel for new customer acquisition. Only 16% emphasized the potential for cost saving.

Major benefits of digital banking are:

- **Business efficiency** - Not only do digital platforms improve interaction with customers and deliver their needs more quickly, they also provide methods for making internal functions more efficient. While banks have been at the forefront of digital technology at the consumer end for decades, they have not completely embraced all the benefits of middleware to accelerate productivity.

**Cost savings** - One of the keys for banks to cut costs is automated applications that replace Traditional bank processing is costly, slow and prone to human error, Company. Relying on people and paper also takes up office space, which ge costs. Digital platforms can future reduce costs through the synergies of faster response to market changes.

Traditional banks that rely mainly on paper processing can have an error requires reworking. Coupled with lack of IT integration between branch and his problem reduces business efficiency. By simplifying the verification implement IT solutions with business software, leading to more accurate uracy is crucial for banks to comply with government regulations.

**Marketing** - Digital solutions help manage marketing lists, allowing banks to id build closer relationships with tech savvy consumers. CRM platforms can d provide quick access to email and other forms of online communication. customer rewards programs that can improve loyalty and satisfaction.

**Automation** - The use of automation can speed up both external and internal processes, both customer satisfaction. Following the collapse of financial markets in 2008, an

management professionals, it's possible for risk management software to detect and respond to market changes more quickly than even seasoned professionals.

- *Enhanced security* - All businesses big or small face a growing number of cyber threats that can damage reputations. In February 2016 the Internal Revenue Service announced it had been hacked the previous year, as did several big tech companies. Banks can benefit from extra layers of security to protect data.

In a contemporary Banking era, Digital is a buzzword and Banks have to stay in race for new-gen needs of digital banking. Digital Banking is not only front end concepts such as Internet Banking, Mobile Banking, Direct Banking, Various Banking apps, use of Social Media in Banking, Artificial Intelligence, Robotics, Chat-bots, Cognitive computing, Block-chain, Big Data, voice biometrics etc ; however it also includes various back-end modernization programs are done to enable overall goals of digital Banking which includes legacy modernization, Integration, CRM, Document Imaging / OCR etc. Training course on Digital Banking at Udemy called "Story of Digital Banking" has video lectures on this.

Banks are going through tremendous challenges of competition from non-banking companies and smaller Fintech companies. Therefore, in order to fight competition and stay ahead of competition in Digital Banking era, it is important for banks to work on not only good web site, social media connect and mobile banking etc; but they also need to innovate with new technology disruptions where AI, ML, Block-chain, Analytics, cloud become buzzwords.

6. A key in which digital banks can gain a significant competitive edge is developing a more robust IT architecture. By replacing manual back-office procedures with automated software solutions, banks can reduce employee errors and speed up processes. This paradigm shift can lead to smaller operational

units and allow managers to concentrate on improving tasks that require human intervention.

Automation reduces the need for paper, which inevitably ends up taking up space that can be occupied with technology. By using software that accelerates productivity up to 50%, banks can improve customer service since they will be able to resolve issues at a faster pace. One way a bank can improve its back end business efficiency is to divide hundreds of processes into three categories:

- full automated
- partially automated
- manual tasks

It still isn't practical to automate all operations for many financial firms, especially those that conduct financial reviews or provide investment advice. But the more a bank can replace cumbersome redundant manual tasks with automation, the more it can focus on issues that involve direct communication with customers. The obstacles currently preventing banks from investing in a more digital back end environment are:

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ly prioritized launching new products that are still difficult to automate ions, new products and government regulations have already established fficult to revise  
s grasp business priorities  
n-house IT expertise beyond traditional mainframe environments

ny problems associated with physical cash, such as misplacement or the en or damaged. Additionally, digital cash can be traced and accounted for of disputes. As consumers find an increasing number of purchasing , there is less need to carry physical cash in their wallets.

id for digital cash is growing are highlighted by the use of peer-to-peer lyPal and the rise of untraceable cryptocurrencies such as bitcoin. Almost oe paid with physical cash can theoretically be paid with the swipe of a bank

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card, including parking meters. The problem is this technology is still not omnipresent. Cash circulation grew in the United States by 42% between 2007 and 2012, with an average annual growth rate of 7%, according to the BBC.

The concept of an all digital cash economy is no longer just a futuristic dream but it's still unlikely to outdated physical cash in the near future. All digital banks are possible as a consumer option, but people may still have a need for physical cash in certain situations. ATMs help banks cut overhead, especially if they are available at various strategic locations beyond branch offices

8. Security is a cornerstone of digital banking. Information security is a set of strategies for managing the processes, tools and policies necessary to prevent, detect, document and counter threats to digital and non-digital information. Information security responsibilities include establishing a set of business processes that will protect information assets regardless of how the information is formatted or whether it is in transit, is being processed or is at rest in storage.

Information security programs are built around the core objectives of the CIA triad: maintaining the confidentiality, integrity and availability of IT systems and business data. These objectives ensure that sensitive information is only disclosed to authorized parties (confidentiality), prevent unauthorized modification of data (integrity) and guarantee the data can be accessed by authorized parties when requested (availability).

Many large enterprises employ a dedicated security group to implement and maintain the organization's information security program. Typically, this group is led by a chief information security officer. The security group is generally responsible for conducting risk management, a process through which vulnerabilities and threats to information assets are continuously assessed, and the appropriate protective controls are decided on and applied. The value of an organization lies within its information -- its security is critical for business operations, as well as retaining credibility and earning the trust of clients.

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Threats to sensitive and private information come in many different forms, such as, identity theft and ransomware. To deter attackers and mitigate risks, multiple security controls are implemented and coordinated as part of a strategy. This should minimize the impact of an attack. To be prepared for a threat, organizations should have an incident response plan (IRP) in place. This should allow for rapid detection, remove the cause and apply updated defense controls.

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## SECURITY

When it comes to information technology, Data theft, hacking, malware and a host of other threats keep any IT professional up at night.

These overarching principles:

- Confidentiality: This means that information is only being seen or used by people who are authorized to access it.
- Integrity: This means that any changes to the information by an unauthorized user are impossible (or at least detected), and changes by authorized users are tracked.
- Availability: This means that the information is accessible when authorized users need it.

9. The Payment and Settlement Systems Act 2007, set up by the **RBI**, provides for the regulation and supervision of payment systems in India and designates the apex institution (RBI) as the authority for that purpose and all related matters. To exercise its powers and perform its functions and discharge its duties, the RBI is authorized under the Act to constitute a committee of its central board, which is known as the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS). The Act also provides the legal basis for ‘netting’ and ‘settlement finality’.

The PSS Act, 2007 received the assent of the President on 20th December 2007 and came into force with effect from 12th August 2008

10. The PSS Act, 2007 provides for the regulation and supervision of payment systems in India and designates the Reserve Bank of India (Reserve Bank) as the authority for that purpose and all related matters. The Reserve Bank is authorized under the Act to constitute a Committee of its Central Board known as the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS), to exercise its powers and perform its functions and discharge its duties under this statute. The Act also provides the legal basis for “netting” and “settlement finality”. This is of great importance, as in India, other than the Real Time Gross Settlement (RTGS) system all other payment systems function on a net settlement basis.

11. Under the PSS Act, 2007, two Regulations have been made by the Reserve Bank of India, namely, the Board for Regulation and Supervision of Payment and Settlement Systems Regulations, 2008 and the Payment and Settlement Systems Regulations, 2008. Both these Regulations came into force along with the PSS Act, 2007 on 12th August 2008

12. The Board for Regulation and Supervision of Payment and Settlement Systems Regulation, 2008 deals with the constitution of the Board for Regulation and Supervision of Payment and Settlement

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ee of the Central Board of Directors of the Reserve Bank of India. It also f the BPSS, its powers and functions, exercising of powers on behalf of and quorum, the constitution of Sub-Committees/Advisory Committees by cises the powers on behalf of the Reserve Bank, for regulation and d settlement systems under the PSS Act, 2007.

t Systems Regulations, 2008 covers matters like form of application for g/ carrying on a payment system and grant of authorization, payment n of standards of payment systems, furnishing of returns/documents/other units and balance sheets by system provider etc

nts and settlement systems, both gross and net settlement systems. For Real Time Gross Settlement (RTGS) system called by the same name and le Electronic Clearing Services (ECS Credit), Electronic Clearing Services debit cards, the National Electronic Fund Transfer (NEFT) system ce.

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## **14. Electronic Payment and Settlement Systems in India**

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The Reserve Bank of India is doing its best to encourage alternative methods of payments which will bring security and efficiency to the payments system and make the whole process easier for banks.

The Indian banking sector has been growing successfully, innovating and trying to adopt and implement electronic payments to enhance the banking system. Though the Indian payment systems have always been dominated by paper-based transactions, e-payments are not far behind. Ever since the introduction of e-payments in India, the banking sector has witnessed growth like never before.

According to a survey by Celent, the ratio of e-payments to paper based transactions has considerably increased between 2004 and 2008. This has happened as a result of advances in technology and increasing consumer awareness of the ease and efficiency of internet and mobile transactions.<sup>[2]</sup>

In the case of India, the RBI has played a pivotal role in facilitating e-payments by making it compulsory for banks to route high value transactions through Real Time Gross Settlement (RTGS) and also by introducing NEFT (National Electronic Funds Transfer) and NECS (National Electronic Clearing Services) which has encouraged individuals and businesses to switch to e-payments. India is clearly one of the fastest growing countries for payment cards in the Asia-Pacific region. Behavioral patterns of Indian customers are also likely to be influenced by their internet accessibility and usage, which currently is about 32 million PC users, 68% of whom have access to the net. However these statistical indications are far from the reality where customers still prefer to pay "in line" rather than online, with 63% payments still being made in cash. E-payments have to be continuously promoted showing consumers the various routes through which they can make these payments like ATM's, the internet, mobile phones and drop boxes.

Due to the efforts of the RBI and the (BPSS) now over 75% of all transaction volume are in the electronic mode, including both large-value and retail payments. Out of this 75%, 98% come from the RTGS (large-value payments) whereas a meager 2% come from retail payments. This means consumers have not yet accepted this as a regular means of paying their bills and still prefer conventional methods. Retail payments if made via electronic modes are done by ECS (debit and credit), EFT and card payments.<sup>[2]</sup>

## **15. Electronic Clearing Service (ECS Credit)**

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Known as "Credit-push" facility or one-to-many facility this method is used mainly for large-value or bulk payments where the receiver's account is credited with the payment from the institution making the payment. Such payments are made on a timely-basis like a year, half a year, etc. and used to pay salaries, dividends or commissions. Over time it has become one of the most convenient methods of making large payments.

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### **ECS (ECS Debit)**

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"Debit-pull" facility this method is used mainly for small value payments from organizations or companies. It eliminates the need for paper and instead involves banks/corporates or government departments. It facilitates individual electricity bills, online and card payments and insurance payments. Though it is not very popular because of lack of consumer awareness.

### **Cards**

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India is one of the fastest growing countries in the plastic money segment. Already there is a high circulation, which is likely to increase at a very fast pace due to rampant use. The market has been recording a growth rate of 30% in the last 5 years. Card payments are a part of e-payments in India because customers make many payments on their debit cards and shopping.

In India, in 1998, they have been growing in number and today they consist of 100 million cards in circulation.

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**Credit cards** have shown a relatively slower growth even though they entered the market one decade before debit cards. Only in the last 5 years has there been an impressive growth in the number of credit cards- by 74.3% between 2004 and 2008. It is expected to grow at a rate of about 60% considering levels of employment and disposable income. Majority of credit card purchases come from expenses on jewellery, dining and shopping.

Another recent innovation in the field of plastic money is co branded credit cards, which combine many services into one card-where banks and other retail stores, airlines, telecom companies enter into business partnerships. This increases the utility of these cards and hence they are used not only in ATM's but also at **Point of sale (POS)** terminals and while making payments on the net.

## 18. Real-time gross settlement

The acronym 'RTGS' stands for real time gross settlement. The **Reserve Bank of India** (India's Central Bank) maintains this payment network. **Real Time Gross Settlement** is a funds transfer mechanism where transfer of money takes place from one bank to another on a 'real time' and on 'gross' basis. This is the fastest possible money transfer system through the banking channel. Settlement in 'real time' means payment transaction is not subjected to any waiting period. The transactions are settled as soon as they are processed. 'Gross settlement' means the transaction is settled on one to one basis without bunching with any other transaction. Considering that money transfer takes place in the books of the Reserve Bank of India, the payment is taken as final and irrevocable.

Fees for RTGS vary from bank to bank. RBI has prescribed upper limit for the fees which can be charged by all banks both for NEFT and RTGS. Both the remitting and receiving must have **core banking** in place to enter into RTGS transactions. Core Banking enabled banks and branches are assigned an **Indian Financial System Code (IFSC)** for RTGS and NEFT purposes. This is an eleven digit alphanumeric code and unique to each branch of bank. The first four letters indicate the identity of the bank and remaining seven numerals indicate a single branch. This code is provided on the cheque books, which are required for transactions along with recipient's account number.

RTGS is a large value (minimum value of transaction should be ₹2,00,000) funds transfer system whereby financial intermediaries can settle interbank transfers for their own account as well as for their customers. The system effects final settlement of interbank funds transfers on a continuous, transaction-by-transaction basis throughout the processing day. Customers can access the RTGS facility between 9 am to 4:30 pm (Interbank up to 6:30 pm) on weekdays and 9 am to 2:00 pm (Interbank up to 3:00 pm) on Saturdays. However, the timings that the banks follow may vary depending on the bank branch. Time Varying Charges has been introduced w.e.f. 1 October 2011 by RBI. The basic purpose of RTGS is to facilitate the transactions which need immediate access for the completion of the transaction.

Banks could use balances maintained under the **cash reserve ratio** (CRR) and the intra-day liquidity (IDL) for meeting any eventuality arising out of the real time gross settlement. The central bank has fixed the IDL limit for banks to three times their net owned fund (NOF).

Time varying charges for RTGS transaction are as follows: A bank will charge a maximum of ₹25 per transaction entered into by the bank on the RTGS platform. The amount will have to be placed as collateral with a margin of five per cent. The bank will impose severe penalties if the IDL is not paid back at the end of the day.

The time window for customer's transactions is available from 8:00 hours to 19:00 hours on weekdays and 9:00 hours to 13:00 hours on Saturdays.

Time varying charges for RTGS transaction are as follows:

Time varying charges for RTGS transaction are as follows:

Time varying charges for RTGS transaction are as follows:

- Above ₹5 lakhs - ₹50 per transaction plus applicable Time Varying Charges (₹1/- to ₹5/-); total charges not exceeding ₹55 per transaction, (+ GST).

No time varying charges are applicable for RTGS transactions settled up to 1300 hrs.

## 19.National Electronic Funds Transfer (NEFT)

Main article: [National Electronic Fund Transfer](#)

facilitates individuals, firms and corporates to electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country. It is done via electronic messages. Even though it is not on real time basis like RTGS (Real Time Gross Settlement), hourly batches are run in order to speed up the transactions.

For being part of the NEFT funds transfer network, a bank branch has to be NEFT-enabled. NEFT has gained popularity due to its saving on time and the ease with which the transactions can be concluded. As at end-January 2011, 74,680 branches / offices of 101 banks in the country (out of around 82,400 bank branches) are NEFT-enabled. Steps are being taken to further widen the coverage both in terms of banks and branches offices. As on 30.12.2017 total no of NEFT enabled branches are increased to 139682 of 188 Banks. ([https://www.rbi.org.in/Scripts/bs\\_viewcontent.aspx?Id=112](https://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=112))

## 20. Indo-Nepal Remittance Facility Scheme

Indo-Nepal Remittance Facility is a cross-border remittance scheme to transfer funds from India to [Nepal](#), enabled under the NEFT Scheme. The scheme was launched to provide a safe and cost-efficient avenue to migrant Nepalese workers in India to remit money back to their families in Nepal. A remitter can transfer funds up to ₹50,000 (maximum permissible amount) from any of the NEFT-enabled branches in India. The beneficiary would receive funds in Nepalese Rupees.

## 21. Immediate Payment Service (IMPS)

Immediate Payment Service (IMPS) is an initiative of [National Payments Corporation of India \(NPCI\)](#). It is a service through which money can be transferred immediately from one account to the other account, within the same bank or accounts across other banks. Upon registration, both the individuals are issued an MMID(Mobile Money Identifier) Code from their respective banks. This is a 7 digit numeric code. To initiate the transaction, the sender in his mobile banking application needs to enter the registered mobile number of the receiver, MMID of the receiver and amount to be transferred. Upon successful transaction, the money gets credited in the account of the receiver instantly. This facility is available 24X7 and can be used through mobile banking application. Some banks have also started providing this service through ~~internet banking profile of their customers~~. Though most banks offer this facility free of cost to encourage

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ICICI bank and Axis bank charge for it as per their respective NEFT charges. This service can be transferred directly also by using the receiver's bank account. In such case, neither the receiver of the money need to be registered for his bank, nor does he need MMID code. IMPS facility differs in that there is no time limit to carry out the transaction. This facility can be availed even on bank holidays including RBI holidays.

BBPS) is an integrated bill payment system in [India](#) offering interoperable service to customers through a network of agents, enabling multiple payment confirmation of payment. This is still in implementation stage. Guidelines for were issued on November 28, 2014.

In their effort to enable customers to make payments the electronic way banks have developed many channels of payments viz. the internet, mobiles, **ATM**'s (Automated Teller Machines) and drop boxes.

The internet as a channel of payment is one of the most popular especially among the youth. Debit and credit payments are made by customers on various bank's websites for small purchases,(retail payments) and retail transfers( ATM transfers).

ATM's serve many other purposes, apart from functioning as terminals for withdrawals and balance inquiries, such as payment of bills through ATM's, applications for cheques books and loans can also be made via ATM's.

Banks also provide telephone and mobile banking facilities. Through call agents payments can be made and as the number of telephone and mobile subscribers are expected to rise, so is this channel of payment expected to gain popularity.

Drop boxes provide a solution to those who have no access to the internet or to a telephone or mobile. These drop-boxes are kept in the premises of banks and the customers can drop their bills along with the bill payment slips in these boxes to be collected by third party agents<sup>[1]</sup>

#### **24.Role of the RBI in encouraging e-payments**

As the apex financial and regulatory institution in the country it is compulsory for the RBI to ensure that the payments system in the country is as technologically advanced as possible and in view of this aim, the RBI has taken several initiatives to strengthen the e-payments system in India and encourage people to adopt it.

Raghuram Rajan, Ex-Governor, RBI, and Nandan Nilekani, Ex-Chairman, UIDAI and Advisor, NPCI, and at the launch of Unified Payments Interface (UPI) in Mumbai.

Imagine paying for everyday purchases directly from your bank, without the need for carrying cash. The RBI's new interface helps you do just that. Reserve Bank of India Governor Raghuram Rajan launched the Unified Payments Interface (UPI) system, as its latest offering in boosting digital money transfers.

The interface has been developed by National Payments Corporation of India (NPCI), the umbrella organisation for all retail payments in the country. The UPI seeks to make money transfers easy, quick and hassle free.

- The Payment and Settlement Systems Act, 2007 was a major step in this direction. It enables the RBI to "regulate, supervise and lay down policies involving payment and settlement space in India." Apart from some basic instructions to banks as to the personal and confidential nature of customer payments, supervising the timely payment and settlement of all transactions, the RBI has actively encouraged consumers to embrace e-payments.

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ve-mentioned goal the RBI has granted **NBFC**'s (Non-Banking Financial Institutions) the power to issue co branded credit cards forming partnerships with commercial banks.

**RuPay** Scheme was launched by **NABARD** in order to meet the credit needs of the rural population to be free of paper money hassles and use only plastic money. **RuPay** Scheme known as RuPay has recently been started by the National Payments Corporation of India (NPCI), promoted by RBI and Indian Banks Association (IBA), inspired by the **MasterCard** and **American Express** which will be promoting the use of cards ie. "plastic money". Initially **RuPay** will focus on potential customers from rural and semi-urban areas of India. **RuPay** will have much wider coverage than Visa, MasterCard or American Express cards used for card-based settlements.

**Pradhan Mantri Jan Dhan Yojana** (PMJDY) (Rural Employment Guarantee Scheme) introduced by the Government will help in ensuring that the employees get wages. Each employee will have a unique identification number, his personal identification card, driver's license, credit card which will also be issued to him. This will help in maintaining a **RuPay** card, thus familiarising the rural populations with e-payments<sup>[2]</sup>.

However, the Indian banking system suffers from some defects due to certain socio-cultural factors which hampers the spread of the e-payments culture even though there are many effective electronic payment channels and systems in place. Despite the infrastructure being there nearly 63% of all payments are still made in cash. A relatively small percentage of the population pays their bills electronically and most of that population is from urban India—the metropolitans. Also in some cases the transaction is done partially online and partially "offline". The main reason for this apathy to switch to e-payments comes from lack of awareness of the customer despite various efforts by the Government.

**25. Block Chain Technology** : ICICI Bank is the first bank in the country and among the first few globally to exchange and authenticate remittance transaction messages as well as original international trade documents related to purchase order, invoice, shipping & insurance, among others, electronically on block chain in real time. The usage of block chain technology simplifies the process and makes it almost instant—to only a few minutes. Typically, this process takes a few days. The block chain application co-created by ICICI Bank replicates the paper-intensive international trade finance process as an electronic decentralised ledger, that gives all the participating entities including banks the ability to access a single source of information.

CODE NAME DIGITS

IFSC - Indian Financial System Code 11

MICR -Magnetic Ink Character Recognition 09

SWIFT Society for worldwide interbank Financial Telecommunication ) 11

UID /UAN – unique Identification Number 12

PIN – Postal Index Number 6

CIN-Cheque Identification Number 7

BIC ( BANK IDENTIFICATION NUMBER) 8

**26. PREPAID PAYMENT INSTRUMENTS** : Eligibility : Banks who comply with the eligibility criteria would be permitted to issue all categories of pre-paid payment instruments. Non-Banking Financial Companies (NBFCs) and other persons would be permitted to issue only semi-closed system payment instruments. Capital requirements : Banks and Non-Banking Financial Companies which comply with the Capital Adequacy requirements prescribed by Reserve Bank of India from time-to-time, shall be permitted to issue pre-paid payment instruments. All other persons shall have a minimum paid-up capital of Rs 100 lakh and positive net owned funds. Safeguards against money laundering (KYC/AML/CFT) provisions -  
e-paid payment instruments (where specific limits have not been prescribed ed) shall not exceed Rs 100,000/-.

ed: Non-bank persons issuing payment instruments are required to maintain an escrow account with any scheduled commercial bank subject to the mount so maintained shall be used only for making payments to the hments. No interest is payable by the bank on such balances.

instruments issued in the country shall have a minimum validity period of six ation/issuance to the holder. The outstanding balance against any payment ed unless the holder is cautioned at least 15 days in advance as regards the ment instrument.

**Scheme (MTSS)** : The Reserve Bank has issued Master Directions relating heme (MTSS), which is a quick and easy way of transferring personal neficiaries in India.

rd personal remittances into India, such as, remittances towards family favouring foreign tourists visiting India and not for outward remittance from

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The system envisages a tie-up between reputed money transfer companies abroad known as Overseas Principals and agents in India known as Indian Agents who would disburse funds to beneficiaries in India at ongoing exchange rates. The Indian Agents can in turn also appoint sub-agents to expand their network. The Indian Agent is not allowed to remit any amount to the Overseas Principal. Under MTSS, the remitters and the beneficiaries are individuals only.

The Reserve Bank of India may accord necessary permission (authorisation) to any person to act as an Indian Agent under the Money Transfer Service Scheme. No person can handle the business of cross-border money transfer to India in any capacity unless specifically permitted to do so by the RBI. To become MTSS agent, min net owned funds Rs.50 lac. MTSS cap USD 2500 for individual remittance. Max remittances 30 received by an individual in India in a calendar year. Min NW of overseas principal USD 01 million, as per latest balance sheet.

## 28. **IMPS**

IMPS offer an instant, 24\*7 interbank electronic fund transfer service capable of processing person to person, person to account and person to merchant remittances via mobile, internet and atm's. It is a multichannel and multidimensional platform that make the payments possible within fraction of seconds with all the standards and integrity maintained for security required for even high worth transactions.

### **MMID - Mobile Money Identifier**

Each MMID is a 7 digit code linked to a unique Mobile Number. Different MMIDs can be linked to same Mobile Number.

Both Sender & Receiver have to register for Mobile Banking & get a unique ID called "MMID"

- Generation of MMID is a One-time process.
- Remitter (Sender) transfer funds to beneficiary (Receiver) using Mobile no. & 7digit MMID of beneficiary.

### **IFS Code**

11 digit alphanumeric number, available in the users Cheque book.

### **IMPS Fund transfer/Remittance options:**

- Using Mobile number & MMID (P2P)
- Using Account number & IFS Code (P2A)
- Using Aadhaar number (ABRS)
- .....
- & MMID (P2P)

2M(Push)  
2M(Pull)

#### **D (P2P)**

erson (P2P) funds transfer requires the Remitter customer to make funds mobile Number and MMID. Both Remitter as well as Beneficiary needs to with their respective bank account and get MMID, in order to send or receive

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#### **S Code (P2A)**

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There may be cases where Remitter is enabled on Mobile Banking, but Beneficiary mobile number is not registered with any bank account. In such cases, Remitter shall not be able to send money to the Beneficiary using Mobile Number & MMID.

Hence on the merit of the feedback received from the banking community as well as to cater the above mentioned need, the IMPS funds transfer has been made possible using Beneficiary account number and IFS code as well, in addition to Beneficiary mobile number and MMID.

### **Customer Initiated - P2M(Push)**

IMPS Merchant Payments (P2M - Person-to-merchant) service allows customers to make instant, 24\*7, interbank payments to merchants or enterprises via mobile phone. IMPS enables mobile banking users a facility to make payment to merchants and enterprises, through various access channels such as Internet, mobile Internet, IVR, SMS, USSD.

Sender enter details of merchant's (Customer initiated - Push)

- Merchant Mobile Number & MMID
- Amount to be transferred
- Payment reference (optional)
- Sender's M-PIN

### **Merchant Initiated - P2M(Pull)**

IMPS Merchant Payments (P2M - Person-to-Merchant) service allows customers to make instant, 24\*7, interbank payments to merchants or enterprises via Mobile & Internet. IMPS enables mobile banking users a facility to make payment to merchants and enterprises, through various access channels such as Internet, mobile Internet, IVR, SMS, USSD.

Customer enter own details (Merchant Initiated - Pull)

- Customer own Mobile Number
- Customer own MMID
- OTP (generated from the Issuer Bank)

**29.Aadhaar Based Remittance Service (ABRS)** In ABRS, a remitter can initiate IMPS transaction using the beneficiary's AADHAAR number, which acts as a financial address & which will be linked to the beneficiaries account number. ABRS facilitates in simplifying the IMPS payment initiation process as in

I have to input only AADHAAR number of the beneficiary for initiating an important utility of this service will be in disbursal of subsidy payment i.e. BT/ Direct Benefit transfer (DBT) by the Government. ABRS will act as a Inclusion reach.

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lapper (QSAM).

lementation of ABRS, a new feature is being added to the existing NUUP #) service. Under this new service, known as "Query Service on Aadhaar able to know : -

er AADHAAR number is seeded/link to any bank account number or not?

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- If yes, then with which bank and when was it last updated?

### **30.Various channels**

IMPS transactions can be initiated from Mobile, ATMs and Internet banking channels.

Appropriate existing two-factor authentication method would be used for all the channels. The limit as prescribed by the bank for these channels would apply while transferring money using either of these channels.

While initiating an IMPS transaction using either ATM or Internet channel, mobile banking registration for a remitting customer is not mandatory. Similarly, for customers receiving money using account number/IFSC, or using AADHAAR number, mobile banking registration is not mandatory.

#### **Mobile Channel**

For transactions initiated using Mobile, transactions will be authenticated using mobile number & MPIN.  
Mobile number + MPIN

#### **ATM channel**

Authentication will be done for remitting customers while using the ATM channel as follows:  
Card + ATM PIN

#### **Internet banking channel**

Authentication will be done for remitting customers while using the Internet banking channel as follows:  
User ID + Internet Banking Password/Transaction Password

### **31.NUUP (\*99# Service on USSD platform)**

One of the innovative payment service launched by NPCI includes \*99# service, which works on Unstructured Supplementary Service Data (USSD) channel. This service was launched envisioning the potential of Mobile Banking and the need for immediate low value remittances which will help in financial deepening and inclusion of underbanked society in the mainstream banking services. \*99# service was dedicated to the nation by the Honourable Prime Minister of India Shri Narendra Modi on 28th August 2014 as part of Pradhan Mantri Jan Dhan Yojana (PMJDY).

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ed to take the banking services to every common man across the country. his service by dialing \*99#, a “Common number across all Telecom Service mobile phone and transact through an interactive menu displayed on the offered under \*99# service include, interbank account to account fund i statement besides host of other services. \*99# service is currently offered l service providers and can be accessed in 12 different languages including s a unique interoperable direct to consumer service that brings together the ch as Banks & TSPs (Telecom Service Providers).

atform developed by NPCI which allows the Banks and TSPs to seamlessly rovide banking services to the customers at large over the mobile phones .

nsfer per customer on NUUP is ₹5,000 per day.

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## **Convenience of \*99\*99# Service**

It is a value added service from NPCI that facilitates the customers to check the status of his/her Aadhaar number seeding/linking in the bank account. The service works across all GSM service providers and brings together the diverse ecosystem partners such as Banks & TSPs (Telecom Service Providers).

Considering that various subsidies and benefits of the State and Central Government schemes under the Direct Benefit Transfer (DBT) programme are being doled out basis the Aadhaar number of the beneficiary; this service has proved to be a convenient mechanism for the users to ascertain his/her Aadhaar seeding/ linking status in the bank account.

**Currently, following Financial, Non-financial and Value Added Services (VAS) are offered through \*99# service:**

- A. Send Money
- B. Request Money
- C. Check Balance
- D. My Profile
- E. Pending request
- F. Transactions
- G. UPI PIN

### **Financial Services**

#### **A. Send Money : Users can send money to the beneficiary using one of the following**

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Mobile Number,  
Aadhar Number,  
Payment address,  
saved beneficiary,  
IFSC code and Account Number

ers can request money from another account holder using beneficiary's registered mobile number or Virtual Payment address.

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w available balance of the bank account linked to user's mobile number.

er can manage the following settings in his profile

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1. Change Bank Account
2. Change Language
3. My details
4. Payment Address
5. Manage Beneficiary
6. Merchant
7. De register

**E. Pending request** : pending requests for payments can be seen

**F. Transactions** : Previous Transactions can be checked

**G. UPI PIN** : UPIN can be set or changed

### **32. Value Added Services:**

It is a value added service from NPCI that facilitates the customers to check the status of his/her Aadhaar number seeding/linking in the bank account.

#### **Main Features of \*99# Service**

- Works without Internet – Uses voice connectivity
  - Round the clock availability (works even on holidays)
  - Accessible through a common code \*99# across all TSPs
  - Works across all GSM service providers and mobile handsets
  - Additional channel for banking and key catalyst for financial inclusion
  - Service also offered through BC Micro ATMs to serve the rural populace
  - No additional charges while roaming for using the service
  - Round the clock availability to customers (works even on holidays)
- application on mobile handset to use the service

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#### **Issue faced by the customer in using \*99# service?**

While using \*99#, customers may face following issues:

**Issue 1: Handset Compatibility Issue:** The \*99# service is available **only on GSM handsets**. **Handset Compatibility Issue:** The \*99# service works across all GSM handsets; however, owing to various reasons, some handsets do not support USSD service. Though, the numbers of such handset models is limited, it is better to check if there handset supports the USSD service (in case they are facing transaction issues).

**Request:** Transaction not getting completed due to wrong IFS Code entered at TSPs or Banks end.

**Transaction declined:** Transaction will get declined if the user enters wrong information like IFS Code, Aadhaar number, etc.

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### **32.Unified Payments Interface ("UPI")**

Unified Payments Interface (UPI) is a payment system launched by National Payments Corporation of India and regulated by Reserve Bank of India.

UPI is a payment system that allows money transfer between any two bank accounts by using a smartphone.

UPI allows a customer to pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFSC code, or net banking/wallet passwords

One needs to download the app from Play Store and install in phone; Set app login; Create virtual address; Add bank account; Set M-Pin; and Start transacting using UPI

It is safe as the customers only share a virtual address and provide no other sensitive information.

All merchant payments, remittances, bill payments among others can be done through UPI.

The per transaction limit is Rs.1 lakh.

A user can make an in-app payment for goods or services purchased online.

For instance a site allows purchase of a movie-on-demand.

User clicks buy, the site/app triggers the UPI payment link and is taken to the pay screen of the UPI app, where the transaction information is verified and a click followed by entry of a secure PIN completes the purchase.

26 major banks in India offer this facility to their customers.

The launch of the Unified Payments Interface ("UPI") by National Payments Corporation of India ("NPCI"), has provided an impetus to India's move to incentivize digital payments with the vision to transform India into a digitally empowered economy and reduce dependence on cash transactions. NPCI is the umbrella body for all payment systems in India, which makes digital transactions as effortless as sending a text message.

UPI makes cutting-edge changes by supporting real time transfer of money between accounts across banks using smartphones by use of just one single interface besides creating interoperability and superior customer experience. Embracing the smartphone boom in India and the inclination of customers to move to digital mobile-based solutions, UPI addresses the challenges and limitations of the existing payment systems, wherein customers are required to disclose sensitive financial details like bank account details, IFSC code, credit/debit card details and sensitive PIN numbers while initiating transactions and juggling applications with their different user IDs and passwords.

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Payment Address is an Address which uniquely identifies a person's bank a/c. For instance, the Payment Address for BHIM customers is in the format xyz@upi. You can just share your Payment Address with anyone to receive payments (no need for bank account number/ IFSC code, etc.). You can also send money to anyone by using their Payment Address. Note: Do not share your confidential UPI PIN with anyone.

Virtual Payment address eliminates the need to provide sensitive information like a bank account details, debit/credit card details and CVV numbers. Also, unlike a mobile wallet, a customer is not required to set aside funds upfront in the mobile wallet setup with the service provider and all transfers under the UPI are made from the bank account linked with your virtual payment address. A virtual payment address is an identifier that will be mapped to a customers bank account, enabling the bank providing the UPI services to process transactions through the bank account linked with the respective virtual payment address.

### Data Security

In terms of data security, UPI provides for a single click two-factor authorization, which implies that with one click, the transaction is authenticated at 2 levels, compliant with the existing regulatory guidelines issued by the Reserve Bank of India ("RBI"), without disclosing banking or personal information. As UPI primarily works based on an individual's 'virtual payment address', one can send and receive payments solely based on their 'virtual payment address' without providing any additional details. For example if you need to make a payment to a merchant for purchases made at a store, you will need to provide him only your 'virtual payment address', the merchant will then enter your 'virtual payment address' into his UPI app, the UPI app will send an authentication messages to the 'virtual payment address' linked to your mobile device, once your receive and acknowledge the message by entering your password will the transaction be completed and the amount payable to the merchant will be debited from your bank account.

### Aggregator of all accounts

UPI acts as an aggregator of all accounts held by a customer enabling such customers to make transactions from multiple accounts owned by them, from one single mobile application or web interface and a customer is free to choose to use any bank's UPI application. Consequently, a customer can own multiple virtual payment addresses wherein each virtual payment address can be linked to a specific account and organise payments or collections, the way it suits them. Moreover, setting an upper limit for payments on certain handles, and restriction of which a certain handle can be used, and standing payment instructions very useful to customers.

Services are required to be authorised by the RBI to provide mobile banking to note that even though the RBI has not issued any specific guidelines on vices, the transactions undertaken through use of UPI are required to be elines issued by RBI including but not limited to, customer registration nes.

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nic QR-code based solution uses the store's existing credit/debit card POS l-based cashless payments.

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- When a customer requests UPI Payment mode, the cashier simply needs to select the 'UPI Payment' option on his existing card POS terminal and inputs the relevant bill payment amount.
- This triggers the generation of a dynamic QR-code on the POS terminal screen itself which can be scanned into any mobile-based UPI-apps like BHIM used by the customer.
- When scanned, the QR code automatically transfers relevant transaction details and displays it on the customer's payment app for authorizing payment transfer.
- Once the payment transfer from customer's UPI-linked bank account to store's UPI-linked account is completed, the payment solution triggers a settlement confirmation to the initiating in-store POS terminal for printing out a transaction completion charge slip.

**Benefits:**

By enabling such a UPI payment confirmation on the merchant POS terminal itself, the new in-store UPI interface addresses a long standing implementation hurdle holding back faster spread of UPI-acceptance in large multi-lane retail stores.

With multiple checkout points, the cashiers in these stores have no direct means of payment receipt prior to releasing the purchased goods to the customer. This is unlike a small single cashier store where such a confirmation could be received via a simple text message to the single cashier's own mobile phone.

The new solution enables the crucial payment confirmation to be received on cashier-independent infrastructure like the store POS terminal - a necessity for multi-cashier stores with high cashier churn. Usage of a Dynamic QR with the merchant VPA (Virtual Private Address) or UPI ID and amount embedded in it eliminates the need for typing in of the customer or merchant credentials in the POS.

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ice besides eliminating the cumbersome and error-prone process of typing

om IMPS?

dditional benefits to IMPS in the following ways:

- Pull functionality
- Payments
- Money transfer
- Actor authentication

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2. Does a customer need to register before remitting funds using UPI?  
Yes, a customer needs to register with his/her PSP before remitting funds using UPI and link his accounts
3. Does the customer need to register a beneficiary before transferring funds through UPI? What details of beneficiary will be required?  
No, registration of Beneficiary is not required for transferring funds through UPI as the fund would be transferred on the basis of Virtual ID/ Account+IFSC / Mobile No+MMID / Aadhaar Number. (Please check with your PSP and Issuing bank with regard to the services enabled on the App).
4. Can I link more than one bank account to the same virtual address?  
Yes, several bank accounts can be linked to the same virtual address depending on the functionalities being made available by the respective PSPs. If the selected Bank name to link with UPI does not find your bank a/c, please ensure that the mobile number linked to your bank account is same as the one verified in BHIM App. If it is not the same, your bank accounts will not be fetched by the UPI platform. Only Savings and Current bank accounts are supported by BHIM.
5. What are the different channels for transferring funds using UPI?
  - The different channels for transferring funds using UPI are:
  - Transfer through Virtual ID
  - Account Number + IFSC
  - Mobile Number + MMID
  - Aadhaar Number
  - Collect / Pull money basis Virtual ID
6. What is the limit of fund transfer using UPI?  
The limit per UPI transaction is Rs. 1 Lakh.

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#### Key (BHIM)

Money (BHIM) was rolled out by Prime Minister Narendra Modi on 30th November 2016 to enable fast, secure and reliable cashless payments through mobile phones.

It is a mobile application developed by the National Payments Corporation of India (NPCI).

The app is available on the Google Play Store. As it is Aadhaar enabled, the app can be used to link Aadhaar with other e-wallets. Moreover, an iOS version will be launched soon. One can register along with a UPI Pin for their account.

The user id can be <mobile number@upi> or <preferred user id@upi>. This user id would be used to send or request money through other ids linked to it. There are about 35 banks.

Bharat Interface for Money (BHIM) is an app that lets you make simple, easy and quick payment transactions. BHIM is a digital payments solution app based on the Unified Payments Interface (UPI) from the National Payments Corporation of India (NPCI), the umbrella organisation for all retail payments systems in India. You can easily make direct bank to bank payments instantly and collect money using just Mobile number or Payment address.

BHIM being UPI-based, is linked directly to a bank account. All the payee needs is a bank account. If this account is UPI activated, you can just ask for the payee's Virtual Payment Address (VPA), and make the payment to that account. Otherwise, there's the option of IFSC or MMID for sending or receiving money. The advantage is there's no need to remember an account number, or to share it with anyone. The VPA is all that is needed.

If you have signed up for UPI-based payments on your bank account, which is also linked to your mobile phone number, you'll be able to use the BHIM app to carry out digital transactions. Services available are as follows:

**The following are the features of BHIM:**

1. Send Money: User can send money using a Virtual Payment Address (VPA), Account Number & IFSC, Aadhaar Number or QR code.
2. Request Money: User can collect money by entering Virtual Payment Address (VPA). Additionally through BHIM App, one can also transfer money using Mobile No. (Mobile No should be registered with BHIM or \*99# and account should be linked)
3. Scan & Pay: User can pay by scanning the QR code through Scan & Pay & generate your QR option is also present.
4. Transactions: User can check transaction history and also pending UPI collect requests (if any) and approve or reject. User can also raise complaint for the declined transactions by clicking on Report issue in transactions.
5. Profile: User can view the static QR code and Payment addresses created or also share the QR messenger applications like WhatsApp, Email etc. available on phone and

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in see the bank account linked with his/her BHIM App and set/change the so change the bank account linked with BHIM App by clicking Change menu and can also check Balance of his/her linked Bank Account by clicking "

egional languages (Tamil, Telugu, Bengali, Malayalam, Oriya, Gujarati, able on BHIM to improve user experience.

n users who are sending you collect requests from illicit sources.

o disable and enable mobilenumbers@upi in the profile if a secondary VPA is abled VPA is also disabled).

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### **Unique features of BHIM:**

- QR code based scan & pay option available, Generate your own QR code option is also available
- Option to save your beneficiaries for future references
- Access transaction history and Request Balance anytime
- Create, reset or change UPI PIN
- Report Issue and call Bank facilities are given to lodge complaints
- FAQ section is created in the app to answer all the queries reg. BHIM
- Available in 2 languages English and Hindi

### **Benefits of BHIM:**

- Single App for sending and receiving money and making merchant payments
- Go cashless anywhere anytime
- Added security of Single click 2 factor authentication
- Seamless money collection through single identifiers, reduced risks, real time
- Mobile no. or Name used to create VIRTUAL PAYMENT ADDRESS (VPA)
- Best answer to Cash on Delivery hassle
- Send and collect using VIRTUAL PAYMENT ADDRESS (VPA) or A/c no & IFSC.
- Payments through single app in your favourite language.
- 24X7, 365 days instantaneous money transfer

### **Transfer Limits:**

- Maximum limit per transaction is Rs. 10,000 per transaction
- Maximum limit per day is Rs. 20,000

Transactions per account per bank.

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Set option BHIM can be executed via the app (available in Play store and store), whereas for feature phones, BHIM can be executed via phone dialler

ime hard binding SMS charges depending on the mobile operator (Standard .For \*99# the charges are Rs.0.50/- for one transaction.

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BHIM app from Google Play store/Apple App Store.

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Step 2: Select your preferred language.

Step 3: Select SIM card which has the mobile number registered with your respective bank.

Step 4: Set the application passcode required to enter the app.

Step 5: Link your bank accounts using bank account option.

Step 6: Set your UPI PIN by providing last 6 digits of debit card and expiry date of debit card.

Step 7 (Optional): Create another virtual payment address (VPA) in the profile section. Automatically `mobilenumbers@upi` will be your default virtual payment address (VPA) (eg. `9876543210@upi`)

Note: 2 virtual payment address (VPA)s are allowed per user 1. `mobilenumbers@upi` and 2. `name@upi`)

Step 8: Set one virtual payment address (VPA) as a primary (default) virtual payment address (VPA) (Eg. `name@upi` can be primary virtual payment address (VPA) making it easy to share with others).

Step 9: Click on send and enter the virtual payment address (VPA)/Account number+ IFSC/Aadhaar number and Scan or Pay option of the person to whom you want to send money.

Step 10: Enter the UPI Pin you set earlier to authenticate the transaction.

Step 11: Check transaction history to see the status of the transaction.

#### **Customer Referral Scheme –**

The scheme is intended to incentivize an existing user of BHIM to bring new users on the BHIM platform and encourage the new user to do transaction using BHIM with other users or by referring new users on BHIM. Hence, the bonus will be paid to both the referrer and the new user of BHIM (referee) and the referral will be considered successful only after 3 successful financial transactions (to any valid UPI user – “valid receiver”) performed by the referee.

The Scheme construct as -

1. An existing BHIM user (Referrer) to refer BHIM application to new user (Referee)
2. New BHIM user (Referee) initiates access to BHIM app or by dialing \*99# from his/her mobile number registered with bank and complete on-boarding process on BHIM i.e. downloading, registering and fetching the bank account

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Referee) completes his/her first eligible financial transaction with any unique

relationship between referrer and referee –

Enter the referral code (mobile number) of the referrer at the time doing the transaction with any unique user (to any valid UPI user including BHIM)

Referrer ID (as an option) will appear on the transaction page and will be visible only to the referrer (referee) at the time of their first financial transaction process

Referee will choose the option of entering the referral code (as an option) at the time of their first financial transaction process

Note that if the referrer mobile number is valid BHIM registered

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5. On completion of minimum 3 unique successful transactions totaling to Rs. 50 to any 3 unique users (either P2P or P2M), the referrer and the referee will be notified about the bonus amount via notification in BHIM app. In this the referrer and referee has to be on BHIM user, however he can perform financial transaction with any valid UPI user / merchant.
6. The bonus will be credited to the bank accounts of the referrer and the referee after meeting the eligibility criteria (as stated below)

#### **Merchant Incentive Scheme –**

1. Merchant can download and install the BHIM App or \*99# in his phone and will have an option to self-declare himself/herself as merchant by clicking on “I Am A Merchant” tab in BHIM App.
2. Once the user clicks on the “I AM A MERCHANT” tab, he/she has to fill in appropriate details asked by the BHIM App - business name, contact number (auto populated), merchant category (drop-down), merchant address, city, pin-code, account type
3. The scheme applies to all merchants who receive payments on BHIM App or \*99#
4. Reward section in BHIM app would display the cashback received to the merchant.
5. Merchant can use any mode available on BHIM [QR Code, VPA, Mobile number, or Aadhaar number] to collect the payments from their customers. Both push and pull based payments shall qualify for this payments.
6. On achieving the cashback incentive slab as defined for the merchants, NPCI initiates the cashback process using NACH platform and the merchant is notified of the cashback via notification in BHIM app

#### **34. National Automated Clearing House (NACH)**

National Payments Corporation of India (NPCI) has implemented “National Automated Clearing House (NACH)” for Banks, Financial Institutions, Corporates and Government a web based solution to facilitate electronic transactions which are repetitive and periodic in nature.

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### **35. White Label ATM and Brown Label ATM**

#### **Sailent features of WHITE LABEL ATM (WLA) ,BROWN LABEL ATM (BLA) comaprision in each point**

1. ATMs set up, owned and operated by non-banks and authorized under Payment & Settlement Systems Act, 2007 by the Reserve Bank of India. Any non-bank entity with net worth of Rs.100 crores can apply for installation White Label ATMs. ATMs where hardware and the lease of the ATM machine is owned by a service provider. Cash management and connectivity to banking networks is provided by a sponsor bank. No instructions on net-worth requirements for BLA entities.
2. Logo displayed on ATM machine and in ATM premises pertain to WLA Operator (WLAO). Logo displayed on ATM machine/ premises is of Sponsor Bank.
3. Services available include:
  - Account Information
  - Mini/Short Statement
  - PIN change
  - Request for Cheque Book
- Services available include:
  - Account Information
  - Mini/Short Statement
  - PIN change
  - Request for Cheque Book
  - Cash deposit
4. Contact number of officials /toll free numbers/ helpline numbers are to be displayed for lodging any complaint regarding failed/disputed transactions. Contact number of officials of the Bank /toll free numbers/ helpline numbers are to be displayed for lodging any complaint regarding failed/disputed transactions.
5. The Grievance Redressal Mechanism available to users of WLA is same as that available to users of banks' ATMs for failed/disputed transactions. The primary responsibility to redress grievances of customers relating to failed transactions at such WLAs will vest with the card issuing bank. The sponsor bank will provide necessary support by ensuring WLA makes available relevant records and information to the Issuing bank. The Grievance Redressal Mechanism available to users of BLA is same as that available to users of banks' ATMs for failed/disputed transactions.
6. Sponsor Bank provides the cash. The Bank provides the cash for the ATMs to the outsourced agency.
7. RBI provides license to White Label Companies. RBI is not involved directly, as the banks have outsourced the contract.

### **36. Desired Features of Mobile Banking**

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Primary way to interact with consumers - When banks first launched apps, to check your balance and keep on top of your spending. However, and banks are delivering - ever more functionality. Particularly with younger being critical to attracting and retaining consumers. The benchmarks for

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Analytics

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cross channel guidance, and marketing and sales.

Some of the important desired features in a mobile banking app across the world and India are as follows:

Download apps for a range of smartphone operating systems. This is one of the greatest challenges -to make the app work across operating systems with various versions of each. Downloadable smartphone apps let digital banking teams use device-specific features to create a smoother and more intuitive experience for mobile banking customers. Although some operating systems are more important in some countries than others, the major four operating systems are - Android, BlackBerry OS, iOS, and Windows Phone.

Easily complete banking tasks via a mobile website. Many customers use the browser on their mobile device to access their bank account information, pay bills on the run, or make other mobile transactions — and today they expect to perform these tasks without the hassle of pinching and zooming their way through a mobile-unfriendly web experience.

Interact with the bank via SMS. Most banks report falling use of SMS text messaging relative to other mobile banking touchpoints. Yet some consumers — especially those who do not have a smartphone — continue to use text banking.

Enroll in mobile banking directly from their smartphone. As younger generations start opening their first bank accounts, the proportion of customers who are mobile-first and mobile-only will rise. Digital banking teams need to enable customers to register for digital banking directly from their mobile devices — rather than forcing them to sign up for online banking first.

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mobile banking. As content and functionality become more extensive, with regular mobile updates, it's important that digital banking teams communicate with new users through how to use mobile banking.

Privacy content. Many customers who are just starting to use mobile banking might be nervous about privacy, while others might want to be reassured in specific situations. This area is available on many retail banks.

Log in information pre-login. Digital banking teams have recognized that many customers don't like having to log in for every banking task and that many like the convenience of logging in once and then being able to access their accounts without needing to enter a password. Log in easily. Banks must make the login process as painless as possible, without compromising security. Leading banks do this by allowing customers to log in with their mobile phone number or email address.

Authentication the first time customers use the app, then letting them use a "remember me" feature. Many banks offer convenient features, such as a "remember this device" feature that allows customers to log in without having to enter their password.

option and the ability to save user names, and they let users opt into an abbreviated login process using a simple PIN code rather than entering a full alphanumeric password.

**Log in easily.** Banks must make the mobile banking login process as painless as possible, without compromising security. Leading banks do this by using multifactor authentication the first time customers use the app, then letting them use a simplified login subsequently. Many banks offer convenient features, such as a “remember this device” option and the ability to save user names, and they let users opt into an abbreviated login process using a simple PIN code rather than entering a full alphanumeric password.

Quickly work out how to achieve their mobile banking goals. The mobile screen customers land on immediately after logging in is a crucial part of their mobile banking experience. Digital banking teams must design screens that make it easy for customers to complete the tasks they logged into mobile banking to do. Most leading banks display prominent one-click links to the most common tasks directly on the home screen.

Quickly and conveniently find transactions. Different customers will search their transaction history with different search tools, according to personal preferences: Many banks are expanding the transaction history tools available via mobile. See an accurate forecast for their spending. A growing number of banks provide customers with a “future view” of their upcoming payments and transfers. And some are even using predictive tools to include transactions the customer hasn’t yet set up.

Better understand their financial lives with embedded money management tools. Digital money management will ultimately be embedded at the heart of digital banking. Not all money management features make sense for mobile touchpoints, but digital teams should offer simple, integrated, and contextual tools that help customers quickly and easily get the information they want or take the action they need.

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s. Overall, the banks offer strong and easy mobile money movement o-account and P2P money transfers.

without sensitive personal details- This is one of the important desired es.

astic. It is observed that digital wallets integrating offers, coupons, point-of-fa  
yality rewards are poised to transform the way consumers shop and make

he mobile app. Self-service features let a customer initiate or complete a  
act with a bank employee. Functionality that lets a customer dispute a card  
der a new debit card is not widely available on banks' mobile banking apps.

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Set up, receive, and manage alerts. Alerts continue to offer great value to customers. Just a few years ago, customers were content to set up and manage alerts via the bank's secure website and receive the alerts via SMS or email. But behavior is changing with the mobile mind shift, and an

increasing number of banks are differentiating themselves by offering alerts delivery and management within the mobile banking app.

Find branches and ATMs. Most of the banks evaluated make it easy for customers to find nearby branches and ATMs, including key information such as hours of operation and providing step-by-step directions.

Easily apply for a new product, account, or service. Application abandonment has been an issue for digital sales teams at banks for years, and the physical limitations of mobile devices can amplify the problem. Someone trying to open a new account is more likely to give up if he or she needs to pinch and zoom through the task flow while also entering information into dozens of data entry fields. So cross-selling effectively means making buying as easy and quick as possible for a customer. For example, mBank has developed simplified product applications with two-step task flows and embedded them within mobile banking.

## 36. INTERNET SERVICE PROVIDERS / HOSTING / BANDWIDTH / DATA DOWNLOAD & UPLOAD

In a typical world scenario, we come across Internet Service Providers (ISPs) advertising about "high speed internet". But when we look at our own internet connections, the download speeds seems to be far below compared to what has been advertised. So what did your ISP actually mean by "Connection Speed"? Is "Connection Speed" totally different from "Download Speed"?

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### Load Speeds

ion speed with downloading speed. Though both of these terms refer fairly etation is slightly different from one another.

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l Bandwidth) refers to the raw data transfer rate of the connection provided ty that is usually advertised and can vary largely among different providers is figure is usually expressed in terms of Kbps (Kilobit per Second) or Mbps

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On the other hand, when we download files from the internet, the same data transfer rate is interpreted as Download Speed. Download speed is usually measured in KBps (Kilobyte per second).

### A Typical Scenario

Say you have a 1 Mbps Internet connection. With such a connection speed, you might expect to download files at a rate of around 1 MB per second, but when you actually download a file, the download speed only reaches up to 100 – 120 KB per second.

Where's the catch? If connection speed and download speed are fairly one and the same, as we mentioned earlier, then we should be ideally getting the same speed for connection and download. So what's missing here?

Actually, connection and download speeds are measured in two different units, so even though these measurements refer to the same thing, their interpreted values turn out to be quite different.

### Connection v/s Download (Units)

Unit used for Connection Speed: Kbps (Kilobit per Second), Mbps (Megabit per Second), Gbps (Gigabit per Second) and so on...

Unit used for Download Speed: KBps (Kilobyte per Second), MBps (Megabyte per Second) and so on.

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8 kilobit (Kb)

or measuring connection and download speed?

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Il unit of representing data. That is why it was adopted as a standard for fer rate, which refers to the connection speed. Hence, connection speeds second (Mbps).

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But a bit in itself is quite meaningless. The data in your computer is stored in the form of 8 bit blocks, known as a byte. So when you download any file from the internet, it is generally represented in Byte. Hence, download speed is usually measured in Kilobyte per second (KBps).

The noteworthy point here is the difference between bit and byte as used in the two units. Connection speed is represented with a (small) 'b' for bit while download speed takes a (capital) 'B' for Byte. Let us have a deeper look at the two units.

$$1 \text{ Megabyte (MB)} = 8 \text{ Megabit (Mb)}$$

$$1 \text{ Megabyte (MB)} = 1024 \text{ Kilobyte (KB)}$$

$$8 \text{ Megabit (Mb)} = 1024 \text{ Kilobyte (KB)}$$

$$\text{Therefore, } 1 \text{ Megabit (Mb)} = [1024/8] = 128 \text{ Kilobyte (KB)}$$

So, in a 1 Mbps connection, your maximum download speed would be 128 KBps (=1Mbps). And this convention kind of suits the ISPs too, as it helps them to lure consumers into visually greater figures.

### Factors affecting Download Speeds

So, we should get a maximum download speed of 128 KBps on a 1 Mbps connection. But practically, we would only be able to download files at 80 KBps – 120 KBps on average. The fall in the download rate is affected by several server-side factors:

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load speeds

ected by several server-side factors:

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### 37. Downloading via Download Managers

Regular downloaders that are integrated with web browsers download files through a single connection. To enhance downloading speeds, third party download manager applications (For example; IDM, DAP, Orbit Downloader, etc.) are available which are able to set up multiple connections in parallel to download a file. Of course, this feature can be primarily controlled by server restrictions. However, if allowed, download managers can simultaneously download several parts of the file and hence improve the overall downloading speed.

### 38. Downloading from Torrents

Torrent downloads work in a different way than regular downloads. Instead of the conventional client-server model, this technology is based on a peer-to-peer model (P2P). In this model, data can flow universally among number of connected users, known as peers. A file being shared on P2P is distributed across the entire network.

There are two types of Peer –Seeder and Leecher. Seeders are users uploading data in the network, and leechers are those who are downloading it. In a torrent network, if there are more number of leechers than seeders, downloading speed might decrease as there are more nodes downloading the data than those who are uploading. On the other hand, if there are more number of seeders, downloading speed might be higher.

Torrent downloads can, in fact, be faster than regular downloads, since there are numerous active parallel connections to download parts of the data. Nodes can connect to a torrent network via BitTorrent clients. Once peers complete download, they can also seed it for other leechers to download from.

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nection speed by performing an online test. Speedtest.net is a good web action in terms of Download and Upload speed.

bad speed are fairly the same thing, only measured in different units. So, to convert Mbps to Kbps, first multiply the connection speed by 8 (Mb) to Kilobit (Kb), and then divide by 8 to convert it from Kilobit (Kb) to

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39.Cheque Truncation System (CTS) or Image-based Clearing System (ICS), in India, is a project of the Reserve Bank of India (RBI), commencing in 2010, for faster clearing of cheques. CTS is based on a cheque truncation or online image-based cheque clearing system where cheque images and magnetic ink character recognition (MICR) data are captured at the collecting bank branch and transmitted electronically.

Cheque truncation means stopping the flow of the physical cheques issued by a drawer to the drawee branch. The physical instrument is truncated at some point en-route to the drawee branch and an electronic image of the cheque is sent to the drawee branch along with the relevant information like the MICR fields, date of presentation, presenting banks etc. This would eliminate the need to move the physical instruments across branches, except in exceptional circumstances, resulting in an effective reduction in the time required for payment of cheques, the associated cost of transit and delays in processing, etc., thus speeding up the process of collection or realization of cheques.

CTS has been implemented in New Delhi, Chennai and Mumbai with effect from February 1, 2008, September 24, 2011 and April 27, 2013 respectively. After migration of the entire cheque volume from MICR system to CTS, the traditional MICR-based cheque processing has been discontinued across the country. The CTS-2010 compliant cheques are both image friendly and have enhanced security features. All banks providing cheque facility to their customers have been advised to issue only 'CTS-2010' standard cheques. Cheques not complying with CTS-2010 standards would be cleared at less frequent intervals i.e. weekly once from November 1, 2014 onwards.

Banks derive multiple benefits through the implementation of CTS, like a faster clearing cycle meaning technically possible realization of proceeds of a cheque within the same day. It offers better reconciliation/ verification, better customer service and enhanced customer window. Operational efficiency provides a direct boost to bottom lines of banks as clearing of local cheques is a high cost low revenue activity. Besides, it reduces operational risk by securing the transmission route. Centralized image archival systems ensure that data storage and retrieval is easy. Reduction of manual tasks leads to reduction of visibility of the cheques, less frauds with secured transfer of images to the

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anks derive from this solution.

RTGS

ced in India since October 2013. With its advanced liquidity and queue new RTGS system is expected to significantly improve the efficiency of ie new RTGS system would be such a driver for India's financial system.

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d to be built on ISO 20022 messaging standards, the new RTGS system is e several new functionalities. These include advance liquidity features, mechanism and hybrid settlement facility, facility to accept future value dated ess multi-currency transactions, etc. These functionalities, as and when

notified to the participants.

The new ISO 20022 compliant RTGS system provides three access options to participants thick-client, Web-API (through INFINET or any other approved network) and Payment Originator module. The participants can decide the mode of participation in the system based on the volume of transactions and the cost of setting up the infrastructure.

The RTGS infrastructure in India is critical in facilitating the orderly settlement of payment obligations. The role of central banks as operators of large-value payment systems is important in the context of the broader role of the central bank in a nation's financial system insofar as it offers safety net attributes by providing final settlement in central bank money.

RTGS is a critical Financial market Infrastructure (FMI) operated by the Reserve Bank of India and it will be assessed against the Committee on Payment and Settlement Systems and the International Organisation of Securities Commissions (CPSS-IOSCO) Principles for Financial Market Infrastructures applicable to FMIs.

With implementation of the new RTGS system, the existing RTGS system will cease to be operational. Further, the RTGS System Regulations 2013 would replace the RTGS (Membership) Business Operating Guidelines, 2004 and RTGS (Membership) Regulations, 2004.

#### 41.National Electronic Fund Transfer (NEFT)

National Electronic Funds Transfer (NEFT) is a nation-wide payment system maintained by Reserve Bank of India (RBI), facilitating one-to-one funds transfer. Under this Scheme, individuals, firms and corporates can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the Scheme. Against the principle of RTGS which is a Real-Time as well as Gross Settlement system, NEFT settlement happens in batches.

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In the NEFT transfer network, a bank branch has to be NEFT- enabled. The list of participating in NEFT is provided in the website of Reserve Bank of India.

Individuals maintaining accounts with a bank branch can transfer funds using NEFT. Non-bank customers who do not have a bank account (walk-in customers) can also deposit cash at the bank branch and furnish instructions to transfer funds using NEFT. However, such cash remittances are limited to Rs.50,000/- per transaction. Such customers have to furnish full details such as name, address, telephone number, etc. NEFT, thus, facilitates originators or remitters to make payments even without having a bank account.

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Individuals, firms or corporates maintaining accounts with a bank branch can receive funds through the NEFT system. It is, therefore, necessary for the beneficiary to have an account with the NEFT enabled destination bank branch in the country.

The NEFT system also facilitates one-way cross-border transfer of funds from India to Nepal. This is known as the Indo-Nepal Remittance Facility Scheme. A remitter can transfer funds from any of the NEFT-enabled branches in to Nepal, irrespective of whether the beneficiary in Nepal maintains an account with a bank branch in Nepal or not. The beneficiary would receive funds in Nepalese Rupees.

Limit on the amount that could be transferred using NEFT – No. There is no limit – either minimum or maximum – on the amount of funds that could be transferred using NEFT. However, maximum amount per transaction is limited to Rs.50,000/- for cash-based remittances within India and also for remittances to Nepal under the Indo-Nepal Remittance Facility Scheme.

**Operating hours of NEFT -** Unlike Real-time gross settlement (RTGS), fund transfers through the NEFT system do not occur in real-time basis. NEFT settles fund transfers in half-hourly

batches with 23 settlements occurring between 8:00 AM and 7:00 PM on week days. Transfers initiated outside this time period are settled at the next available window. No settlements are made on the second and fourth Saturday of the month or on Sundays.

**Process of NEFT system -** An individual / firm / corporate intending to originate transfer of funds through NEFT has to fill an application form providing details of the beneficiary (like name of the beneficiary, where the beneficiary has an account, IFSC of the beneficiary bank branch,

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(credit). Thereafter, bank-wise remittance messages are forwarded to the destination banks through their pooling centre (NEFT Service Centre).

Finally, the destination banks receive the inward remittance messages from the Clearing Centre and pass on the credit to the beneficiary customers' accounts.

IFSC- IFSC or Indian Financial System Code is an alpha-numeric code that uniquely identifies a bank-branch participating in the NEFT system. This is an 11 digit code with the first 4 alpha characters representing the bank, and the last 6 characters representing the branch. The 5th character is 0 (zero). IFSC is used by the NEFT system to identify the originating / destination banks / branches and also to route the messages appropriately to the concerned banks / branches.

Acknowledgement by SMS - In case of successful credit to the beneficiary's account, the bank which had originated the transaction is expected to send a confirmation to the originating customer (through SMS or e-mail) advising of the credit as also mentioning the date and time of credit. For the purpose, remitters need to provide their mobile number / e-mail-id to the branch at the time of originating the transaction.

Tracking an NEFT transaction - The remitter can track the NEFT transaction through the originating bank branch or its CFC using the unique transaction reference number provided at the time of initiating the funds transfer. It is possible for the originating bank branch to keep track and be aware of the status of the NEFT transaction at all times.

#### Benefits of using NEFT:

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over the other modes of funds transfer:

Send the physical cheque or Demand Draft to the beneficiary. The

it his / her bank for depositing the paper instruments.

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not be apprehensive of loss / theft of physical instruments or the likelihood of thereof.

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Credit confirmation of the remittances sent by SMS or email.

Remitter can initiate the remittances from his home / place of work using the internet banking also.

Near real time transfer of the funds to the beneficiary account in a secure manner.

NEFT has gained popularity due to its saving on time and the ease with which the transactions can be concluded. Introduction of Immediate Payment Services (IMPS) by 41.National Payments Corporation of India (NPCI), which is gaining popularity reduces the burden on NEFT systems at RBI.

#### National Payments Corporation of India (NPCI) – Its Products & Services

National Payments Corporation of India (NPCI), is the umbrella organisation for all retail payment systems in India, which aims to allow all Indian citizens to have unrestricted access to e-payment services.

Founded in 2008, NPCI is a not-for-profit organisation registered under section 8 of the Companies Act 2013. The organisation is owned by a consortium of major banks<sup>[3]</sup> and has been promoted by the country's central bank, the Reserve Bank of India. Its recent work of developing Unified Payments Interface aims to move India to a cashless society with only digital transactions.

It has successfully completed the development of a domestic card payment network called RuPay, reducing the dependency on international card schemes. The RuPay card is now accepted at all the ATMs, Point-of-Sale terminals and most of the online merchants in the country. More than 300 cooperative banks and the Regional Rural Banks (RRBs) in the country have also issued RuPay ATM

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ave been issued by various banks, and it is growing at a rate of about

of the card called 'Kisan Card' is now being issued by all the Public

mainstream debit card which has been issued by 43 banks. RuPay cards Dhan Yojana scheme.

ational Financial Switch) operations from 14 December 2009 from IDRBT. ules are being framed for enrolling all banks in the country as members so yment systems are launched, all would get included on a standardized

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The key products of NPCI are:

National Financial Switch (NFS) which connects 1, 98, 953 ATMs of 449 banks (91 Member Banks, 358

Sub-Member), Immediate Payment Service (IMPS) provided to 84 member banks, with more than 8.49 crore MMID (Mobile Money Identifier) issued, and crossed 10 million transactions.

National Automated Clearing House (NACH) - has close to 400 banks on board. Aadhaar Payments Bridge System (APBS) has more than 358 banks. Cheque Truncation System (CTS)

has fully migrated in 3 grids - southern, western & northern grids from MICR centres. Aadhaar-enabled payment system (AEPS) - has 36 member banks. RuPay – Domestic Card Scheme- has issued over 20 crore cards and enabled 10, 70, 000 PoS terminals in the country. The newest and most advanced addition to the NPCI revolution is the Unified Payments Interface (UPI) which has been launched on 11 April 2016.

RuPay PaySecure - Over 20 banks now offer this authentication mechanism to their RuPay cardholders. The new transaction flow of Card + OTP has infused more simplicity to cardholders. More than 70,000 merchants accept Rupay cards online. RuPay PaySecure is live on 10 acquiring banks which includes Union Bank of India, Kotak Mahindra Bank, Citi Bank, ICICI Bank, HDFC Bank, State Bank of India, IDBI Bank, IndusInd Bank, Bank of Baroda and Bank of India.

**42. Debit Cards** known as check cards. It operates like cash or a personal check. Debit cards are different from credit cards. Credit card is a way to "Pay Later" whereas debit card is a way to "Pay Now."

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account of the customer will be debited immediately on completion of accepted at many locations, including retail stores, petrol pumps, and forms coupled with ease of usage have led to increase debit card base over consciously driving the customers to alternate delivery channels by issuing king of the account itself to reduce the work load and to enable them to pay king activities. In order to make Credit/Debit Card transactions more secure, ers to enter PIN while transacting at POS terminals. As per recent RBI lated to issue only Chip enabled Cards w.e.f.01.10.16.

t of credit card was used in 1950 with the launch of charge cards in USA by press. Credit card became more popular with use of magnetic strip in 1970. ued in 1981 and Gold Card in 1986 by VISA. Credit cardholder need not ids and services at any approved Merchant Establishments/Point of sale card duly signing the charge slip. Further, cardholders can make online sing the card and PIN. Added to this, cardholder can withdraw cash at any er, cash advance attracts charge i.e. transaction fee as well as service

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**44 Charge Card** is like any Credit or Debit Card. These cards neither offer revolving credit like the Credit Card nor debit the account instantaneously like Debit Card. However, the cardholder is required to settle the bill in full by the due date each month. Charge cards make a good option to develop financial discipline which likely to enable the cardholders to improve their credit history. Further, charge card offers a dynamic limit, while rewarding good payment record.

**45 Prepaid Card** looks like a credit card and works like a debit card. These cards resemble credit and debit cards in appearance and allow users to load any amount up to ₹100000/- and can be used at any

ATM/Point of Sale Terminal. On use of card, funds are directly debited from the card. Cardholders preload the cards with funds via a cash deposit or wire transfer. There are no finance fees or interest payments as charges are deducted from the prepaid balance. It is an opportunity for people who have had little or no access to the mainstream financial system by loading funds onto a prepaid card. It is a secure and convenient alternative to cash. The issuers of prepaid cards should ensure KYC compliance while issuing cards to the customers/public. Various types of Prepaid Cards are – Re-loadable Cards (value is replenished once it is used), Disposable Cards (discarded once the value is used), Closed Cards can be used for a specific purpose (Phone Cards) and Open Cards (multi-purpose). Re-loadable cards are most popular among “under-banked” individuals, or those who tend not to possess conventional bank accounts.

**46 Gift Card** is one of the paperless payment systems and is highly popular in card industry. It is a card with predetermined

limit and value is loaded through cash or transfer from the account. Maximum value of each prepaid gift instrument shall

not exceed Rs.10000/-However, these instruments shall not be reloadable.

**47 Forex Card:** It is similar to a normal prepaid card with a special feature meant for the students going to abroad for higher studies. It can be used at POS terminals, ATMs and for online transactions. Parents can load/reload the card using the login credentials issued while buying the card. The banks are levying reasonable charges for cash withdrawal and some banks waiving the charges too. Another advantage of the card is that it can be used to pay fees instead of paying through wire transfer from India. The withdrawals or payments are allowed in five currencies viz., USD, GBP, EUR, CAD and AUD. The card validity ranges up to five years and the maximum permissible limit by RBI under Liberalized Remittance Scheme is \$2.50 lakh. At present, ICICI and HDFC banks are issuing forex cards and other banks may follow.

**47 RuPay Debit Cards:** It is a domestic card payment network established by National Payment Corporation of India (NPCI) having more than 100 Banks in India as members with its ATM network spread across the country. These cards can be used at all ATMs of NPCI network and POS terminals & e-com transactions (Internet) enabled for RuPay acquiring. The various types of RuPay Debit cards are as under:

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| Agriculture production loans (Crop Loans)  
of Electronic Benefit Transfer (EBT) scheme  
for Financial Inclusion schemes  
ace cover up to ₹1 lakh without any charge to the customer. To avail this  
d minimum once in 90 days. The existing identification modes used in new  
r drawback as it recognize the PIN but not the person. Sometimes, it leads  
se financial loss. To overcome the problem, biometric technologies such as  
Recognition, Voice Authentication, Hand Geometry, Retinal Scanning, Iris  
cation have come in to force. Whenever the user access to delivery channel,  
deliver the service if found correct. Recently, NPCI introduced two variants  
and Rupay Select with value added features at competitive interchange fee

48.NPCI service portfolio now and in the near future include:

National Financial Switch (NFS) - network of shared automated teller machines in India. Unified Payment Interface (UPI) - Single mobile application for accessing different bank accounts

BHIM App - Smartphone app built using UPI interface.

Immediate Payment Service (IMPS) - Real time payment with mobile number. \*99# - mobile banking using USSD

National Automated Clearing House (NACH)-

Cheque Truncation System -online image-based cheque clearing system  
Aadhaar Payments Bridge System (APBS) -

Bharat Bill Payment System (BBPS) - integrated bill payment system

#### 49 IMPS (Immediate Payment Services)

Immediate Payment Service (IMPS) is an instant real-time inter-bank [electronic funds transfer](#) system in [India](#). IMPS offers an inter-bank electronic fund transfer service through mobile phones. Unlike [NEFT](#) and [RTGS](#), the service is available 24/7 throughout the year including bank holidays. When one initiates a fund transfer via IMPS, the initiator bank sends a message to IMPS, which debits the money and sends it to the receiving account. All this happens within 5-10 seconds.

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e payment service that is available round the clock. This service is offered by National Payments Corporation of India (NPCI) that empowers customers to transfer money instantly across the country. It is also known as Prepaid Payment Instrument Issuers (PPI) across India.

onal even on holidays) Safe and reliable and cost effective

Channel Independent can be initiated from Mobile/ Internet / ATM channels

- Debit & Credit Confirmation by SMS to both sender and receiver

#### 49. National Unified USSD Platform (NUUP):

NUUP (National Unified USSD Platform) is a USSD based mobile banking service from NPCI that brings together all the Banks and Telecom Service Providers. In NUUP, a customer can access banking services by just pressing \*99# from his/her mobile phones. This service works across all GSM mobile handsets.

IMPS transactions can be sent and received 24X7, (round the clock), including on holidays. Both sender & receiver get SMS confirmation.

For using IMPS on mobile phones, a customer will have to register for mobile banking with his/her individual bank. However, for initiating IMPS using Bank branch, Internet banking and ATM channels, no prior Mobile banking registration is required. Both banked as well as un-banked customer can avail IMPS. However, unbanked customer can initiate IMPS transaction using the services of Pre-Paid Payments instrument issuer (PPI). MMID - Mobile Money Identifier is a 7 digit number, issued by banks. MMID is one of the input which when clubbed with mobile number facilitates fund transfer. Combination of Mobile no. & MMID is uniquely linked with an Account number and helps in identifying the beneficiary details. Different MMID's can be linked to same Mobile Number. (Please contact your bank for getting the MMID issued)

#### Options available for a customer for doing IMPS transaction

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Mobile no. and MMID  
Account no. and IFS Code

haar Number

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(BHIM) is an app that lets you make simple, easy and quick payment yments Interface (UPI). You can make instant bank-to-bank payments and ust Mobile number or Virtual Payment Address (VPA).

The following are the features of BHIM:

1. **Send Money**: User can send money using a Virtual Payment Address (VPA), Account Number & IFSC, Aadhaar Number or QR code.
2. **Request Money**: User can collect money by entering Virtual Payment Address (VPA). Additionally through BHIM App, one can also transfer money using Mobile No. (Mobile No should be registered with BHIM or \*99# and account should be linked)
3. **Scan & Pay**: User can pay by scanning the QR code through Scan & Pay & generate your QR option is also present.
4. **Transactions**: User can check transaction history and also pending UPI collect requests (if any) and approve or reject. User can also raise complaint for the declined transactions by clicking on Report issue in transactions.
5. **Profile**: User can view the static QR code and Payment addresses created or also share the QR code through various messenger applications like WhatsApp, Email etc. available on phone and download the QR code.
6. **Bank Account**: User can see the bank account linked with his/her BHIM App and set/change the UPI PIN. User can also change the bank account linked with BHIM App by clicking Change account provided in Menu and can also check Balance of his/her linked Bank Account by clicking "REQUEST BALANCE"
7. **Language**: Up to 8 regional languages (Tamil, Telugu, Bengali, Malayalam, Oriya, Gujarati, Kannada ,Hindi) available on BHIM to improve user experience.
8. **Block User**: Block/Spam users who are sending you collect requests from illicit sources.
9. **Privacy**: Allow a user to disable and enable `mobilenumber@upi` in the profile if a secondary VPA disabled VPA is also disabled).

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Play store (for android User) and App Store (for Apple User)\*\*

cashless transactions, Govt. of India has launched Bharat QR Code, which payment platform. National Payments Corporation of India (NPCI), which is all digital and online retail payment systems in India, has developed this inspire and encourage more digital payments, without using debit or credit

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QR Codes are black and white two-dimensional machine readable code, which stores information about the merchant's bank accounts and URLs. With Bharat QR Code interface, merchants need to take a printout of their QR code (or have a soft copy) and show it to the consumer, who can simply scan the code using his or her smartphone, and the payment would be made. Instantly, seamlessly and without any hassles.

We had reported last year that Govt. is considering to create a common QR Code based payment mechanism, which has now been officially launched. The Retail industry is excited by its possibilities because QR code-based payments solves two major problems in a single go: a) less time consumed to make the payment, compared to debit/credit card b) no requirement to actually flash your credit/debit cards for making the payment.

Here are some interesting facts about Bharat QR Code payment system, which every debit/credit holder (who is also a bank account holder) should be aware of:

### 51. Smart Cards

The smartcards have increased data security, an active anti-fraud capabilities, multipurpose capabilities, flexibility in applications, and off-line validation. These functions are more or less inter-related but the most important of all is the high level of security provided by the smartcard compared to the other type of cards in operation. This makes it possible the use the smart cards in transactions dealing with money, property and personal data.

The Reserve Bank of India has set a target for banks to upgrade all ATMs by September 2017 with additional safety measures to process EMV chip and PIN cards in order to prevent skimming and cloning of debit and credit cards.

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Structure in the country has been enabled to accept and process EMV chip structure continues to process the card transactions based on data from the the ATM card transactions remain vulnerable to skimming, cloning, etc. are EMV chip and PIN based.

mandate EMV (Europay, MasterCard, Visa) chip and PIN card acceptance. Contact chip processing of EMV chip and PIN cards at ATMs would not security of transactions at ATMs but also facilitate preparedness of the Liability Shift" for ATM transactions, as and when it comes into effect.

formity in card payments ecosystem, banks should also implement the new ATMs which are enabled to handle card-based payments.

### 53.CVV OR CSC NUMBER

The CVV Number ("Card Verification Value") on credit card or debit card is a 3 digit number on VISA, MasterCard and Discover branded credit and debit cards. On American Express branded credit or debit card it is a 4 digit numeric code.

The CVV number can be located by looking on credit or debit card, as illustrated in the image below:

Providing the CVV number to an online merchant proves that one actually has the physical credit or debit card - and helps to keep one safe while reducing fraud.

CVV numbers are NOT the card's secret PIN (Personal Identification Number).

One should never enter one's PIN number when asked to provide the CVV. (PIN numbers allow one to use one's credit or debit card at an ATM or when making an in-person purchase with debit card or a cash advance with any credit card.)

CVV numbers are also known as CSC numbers ("Card Security Code"), as well as CVV2 numbers, which are the same as CVV numbers, except that they have been generated by a 2nd generation process that makes them harder to "guess".

In 2016, a new e-commerce technology called Motioncode was introduced, designed to automatically refresh the CVV code to a new one every hour or so.

### 54.ATM & POINT OF SALE (POS)

ATM (Automated Teller Machine) A typical ATM could duplicate most of the services of a live teller; deposits, withdrawals, and money transfers between accounts all could be made with relative ease. More significantly, the terminals could be located outside the bank lobby, allowing 24 hour access and greater customer convenience. For the banks ATM's became mini-branches that extended their financial territory and customer base far beyond physical buildings. As a result, many ATMs rapidly found homes inside convenience stores, gas stations, and other highly trafficked locations, a situation that provided instant cash for customers.

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TM's which do not belong to any bank but managed by a non-banking entity, like Payment Services.

the final solution to the common electronic goal, because they still involved in a second generation machine called a Point of Sale terminal (POS), the world suddenly took a giant leap forward. The potential of POS for the economy was enormous. It was logical to assume that if the capability to the extent of obtaining cash out of an account using a networked ATM also must be ripe for eliminating the need for physical money altogether. A key ingredient in the transition to this goal.

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A point of sale terminal (POS terminal) is an electronic device used to process card payments at retail locations. . Point of sale terminals are a combination of software and hardware that allows retail locations to accept card payments without updating their cash registers to read cards directly. The costs of installing POS terminals vary with the size of the business and the terms from the supplier. Small merchants may have to pay rent for the terminal, as well as pay an additional per-transaction fee.

The trend is away from the traditional use of just magnetic stripe reader as more options open up for mobile payments.

A POS terminal generally does the following:

Reads the information off a customer's credit or debit card

Checks whether the funds in a customer's bank account are sufficient

Transfers the funds from the customer's account to the seller's account (or at least, accounts for the transfer with the credit card network)

Records the transaction and prints a receipt

Despite the more advanced technology of a POS system as compared to a simple cash register, the POS system is still as vulnerable to employee theft through the sale window. A dishonest cashier at a retail outlet can collude with a friend who pretends to be just another customer. During checkout the cashier can bypass scanning certain items or enter a lower quantity for some items thus profiting thereby from the "free" goods.

With the launch of mobile payment particularly Android Pay and Apple Pay both in 2015, it is expected

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## Latest Trends in eCommerce

A key outcome of the technology revolution in India has been connectivity, which has fuelled unprecedented access to information. Millions of people who had little means to join the national discourse can now gain new insights into the world around them. Farmers know crop prices. Consumers understand global standards of product and service quality. Rural Indians recognise the differences between the opportunities available to them and those available to their urban counterparts. And citizens have a mass forum for expressing their political opinions. The upshot of this connectivity revolution has been empowerment of Indians.

An analysis of the demographic profile of internet users further testifies that eCommerce will rise rapidly in India in coming years. Around 75% of Indian internet users are in the age group of 15 to 34 years. This category shops more than the remaining population. Peer pressure, rising aspirations with career growth, fashion and trends encourage this segment to shop more than any other category and India, therefore, clearly enjoys a demographic dividend that favours the growth of eCommerce. In coming years, as internet presence increases in rural areas, rural India will yield more eCommerce business

Mobile to be the most influential aspect of eCommerce -With mobile apps being developed by most eCommerce websites, smartphones are increasingly replacing PCs for online shopping. In 2013, only 10% of the mobile users used smartphones, and only 5% of the eCommerce transactions were made through a mobile device. This figure has more than doubled, and more than 13% of all eCommerce transactions today happen via mobile<sup>3</sup>. According to some industry players, over 50% of the orders are being placed through mobile apps, which is not only leading to substantial customer acquisition but also building customer loyalty for various brands. However, most mobile transactions so far are for entertainment, such as booking movie tickets and music downloads. This trend will change soon with more and more merchandise being ordered online.

**More business coming from smaller towns** - eCommerce is increasingly attracting customers from Tier 2 cities - Besides general online shopping, customers are also shopping online thanks to wider range of products being offered and aggressive quick shipment and wider choice of products, along with the ease of

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to in-store shopping, is also helping eCommerce gather momentum.

es are doing rapid business due to sales.

ading brands - Over the year or so, there has been a trend of exclusive tie-up between established boutiques, designers, and high-end lifestyle and fashion brands. International fashion brands such as Dorothy Perkins, River Island, Blue

saint and Miss Selfridge, along with local fashion brands through Jabong Boutiques. Similarly, Myntra benefited from exclusive tie-ups with brands such as Harvard Lifestyle, Desigual and WROGN from Virat Kohli.

**Expanding the product basket -** There is a recent trend of relatively newer products such as grocery, hygiene, and healthcare products being purchased online. Similarly, lingerie and Indian jewellery has also been in great demand among customers outside India. Export comprises 95% of cross-border eCommerce, with the US, UK, Australia, Canada and Germany being the major markets.

#### Innovation in online business models

To get the maximum benefit from eCommerce business, a large number of companies such as Amazon, Alibaba etc. are adopting different innovative ideas and operating models including partnering with online marketplaces or setting up their own online stores. Some key operating models include the following:

- Marketplace and pick-up & drop is a model where sellers often partner with leading marketplaces to set up a dedicated online store on the latter's website. Here sellers play a key role of managing inventory and driving sales. They leverage on high traffic on the marketplaces' website and access their distribution network. However, the sellers have limited say on pricing and customer experience.
- Self-owned inventory is a model where the eCommerce player owns the inventory. The model provides better post-purchase customer experience and fulfilment. It provides smoother operations due to ready information on the inventory, location, supply chain and shipments, effectively leading to better control over inventory. On the flipside, however, there are risks of potential mark downs and working capital getting tied up in inventory.
- Private label reflects a business where an eCommerce company sets up its own brand goods, which it sells through its own website. This model offers a wide-ranging products and pricing to its sites with branded labels. Here, margins are typically higher than third-party

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The setting up of a branded online store managed by the eCommerce player brand takes the responsibility of generating website traffic and providing payment gateways. It helps build trust, customer affinity and loyalty control of brand and product experience.

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Mobile banking. It is a facility used by some banks or other financial institutions to send notifications (or alerts) to customers' mobile phones using SMS messaging, in which enables customers to perform some financial transactions using

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SMS banking services may use either push and pull messages. Push messages are those that a bank sends out to a customer's mobile phone, without the customer initiating a request for the information. Typically, a push message could be a mobile marketing message or an alert of an event which happens in the customer's bank account, such as a large withdrawal of funds from an ATM or a large payment involving the customer's credit card, etc. It may also be an alert that some payment is due, or that an e-statement is ready to be downloaded.

Another type of push message is one-time password (OTPs). OTPs are the latest tool used by financial institutions to combat cyber fraud. Instead of relying on traditional memorized passwords, OTPs are sent to a customer's mobile phone via SMS, who are required to repeat the OTP to complete transactions using online or mobile banking. The OTP is valid for a relatively short period and expires once it has been used.

Bank customers can select the type of activities for which they wish to receive an alert. The selection can be done either using internet banking or by phone.

Pull messages are initiated by the customer, using a mobile phone, for obtaining information or performing a transaction in the bank account. Examples of pull messages include an account balance enquiry, or requests for current information like currency exchange rates and deposit interest rates, as published and updated by the bank. Depending on the selected extent of SMS banking transactions offered by the bank, a customer can be authorized to carry out either non-financial transactions, or both financial and non-financial transactions. SMS banking solutions offer customers a range of functionality, classified by push and pull services as outlined below.

Typical push services would include:

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nce reporting (say at the end of month);  
l other credits to the bank account;

essful execution of a standing order;  
f a cheque issued on the account;

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an account;

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the ATM or EFTPOS on a debit card;

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n a credit card or out of country activity on a credit card. one-

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thentication

- an alert that some payment is due
- an alert that an e-statement is ready to be downloaded.

Typical pull services would include:

Account balance enquiry; Mini statement request; Electronic bill payment;

Transfers between customer's own accounts, like moving money from a savings account to a current account to fund a cheque;

Stop payment instruction on a cheque;

Requesting for an ATM card or credit card to be suspended;

De-activating a credit or debit card when it is lost or the PIN is known to be compromised;

Foreign currency exchange rates enquiry;  
Fixed deposit interest rates enquiry

#### Security concerns in SMS Banking

The lack of encryption on SMS messages is an area of concern that is often discussed. This concern sometimes arises within the group of the bank's technology personnel, due to their familiarity and past experience with encryption on the ATM and other payment channels. The lack of encryption is inherent to the SMS banking channel and several banks that use it have overcome their fears by introducing limiting the scope of the SMS banking application to where it offers an s.

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These solutions have found reliable means by which the security concerns the methods employed are by pre-registration and using security tokens perceived to be high.

These are owned and developed by the banks using them. There is only one platform supporting mobile banking and SMS payments called Cyclos, which empower local banks in development countries.

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## SMS & Email Alerts in Banking

This is a very useful facility that sends customer information on customer's banking transactions. The alerts are either event based or frequency based. When register for certain alerts they are sent to customer either via SMS or email, or both. Some alerts are made mandatory by regulator whereas for others they customer may choose as per his requirement. Some banks send email alerts for monthly account statements in encrypted pdf format which may be opened using a password only.

RBI's has made SMS for clearing cheque transactions mandatory- Expressing concern over the rise in cheque-related fraud cases, the Reserve Bank of India (RBI) has made SMS alerts mandatory for such transactions since November 2014. Banks now send SMS alerts to both payer and drawer in cheque transactions as soon as the instruments are received for clearing.

## 56.Bharat Bill Payment System (BBPS)

Bharat Bill Payment System (BBPS) is an integrated bill payment system in India offering interoperable and accessible bill payment service to customers online as well as through a network of agents, enabling multiple payment modes, and providing instant confirmation of payment.

57. National Payments Corporation of India (NPCI) will function as the authorised Bharat Bill Payment Central Unit (BBPCU), which will be responsible for setting business standards, rules and procedures for technical and business requirements for all the participants. NPCI, as the BBPCU, will also undertake clearing and settlement activities related to transactions routed through BBPS. Existing bill aggregators and banks are envisaged to work as Operating Units to provide an interoperable bill payment system irrespective of which unit has on-boarded a particular biller. Payments may be made through the BBPS using cash, transfer cheques, and electronic modes. To start with, the scope of BBPS will cover repetitive payments for everyday utility services such as electricity, water, gas, telephone and Direct-to-Home

ould be expanded to include other types of repetitive payments, like school es etc.

so at times referred to as information security is concerned with three main

horized users can access the data resources and information.

d users should be able to modify the data when needed.

be available to users when needed.

is is critical for computer security. Confidentiality deals with prevention of unt information, credit card information, passwords etc. Integrity refers to ata creation, modification or deletion. Last but not the least is availability, ire able to access data whenever needed.

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## 58.Aadhaar Enabled Payment System

### Background

In order to further speed track Financial Inclusion in the country, Two Working Group were constituted by RBI on MicroATM standards and Central Infrastructure & Connectivity for Aadhaar based financial inclusion transactions with members representing RBI, Unique Identification Authority of India, NPCI, Institute for Development and Research in Banking Technology and some special invitees representing banks and research institutions.

The working group on MicroATM standards & Central Infrastructure & Connectivity has submitted its report to RBI. As a part of the working group it was proposed to conduct a Lab level Proof of concept (PoC), integrating the authentication & encryption standards of UIDAI, to test the efficacy of MicroATM standards and transactions using Aadhaar before they are put to actual use. The PoC was successfully demonstrated at various venues.

AEPS is a new payment service offered by the National Payments Corporation of India to banks, financial institutions using 'Aadhaar'. This shall be known as 'Aadhaar Enabled Payment System' and may also be referred to as "AEPS". AEPS is a bank led model which allows online interoperable financial inclusion transaction at PoS (MicroATM) through the Business correspondent of any bank using the Aadhaar authentication. Any resident of India holding an Aadhaar number and having a bank account may be a part of the Aadhaar Enabled Payment System.

The customer conducting an AEPS transaction may visit a BC Customer Access Point. The BC using the Point of Sale (MicroATM) device will be able to process transactions like Cash Withdrawal, Cash Deposit, Balance Enquiry and Fund Transfer by selecting the transaction of their choice. The Customer needs to provide their Aadhaar Number and their bank name or bank IIN number.

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k to which the customer has mapped his/her Aadhaar number. Each bank issuer Identification Number (IIN) NPCI. This is a six digit number. The IIN number represented on the terminal by various bank logos/ bank correspondent (BC) agent will have a chart displayed of various banks IIN in the before the customer need not necessarily remember the IIN. It is however be aware of their bank IIN to completely ensure an AEPS transaction.

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asic types of banking transactions are as follows:-

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The only inputs required for a customer to do a transaction under this scenario are:-

- IIN (Identifying the Bank to which the customer is associated)
- Aadhaar Number
- Fingerprint captured during their enrollment

## Objectives

- To empower a bank customer to use Aadhaar as his/her identity to access his/ her respective Aadhaar enabled bank account and perform basic banking transactions like balance enquiry, Cash deposit, cash withdrawal, remittances that are intrabank or interbank in nature, through a Business Correspondent.
- To sub-serve the goal of Government of India (GoI) and Reserve Bank of India (RBI) in furthering Financial Inclusion.
- To sub-serve the goal of RBI in electronification of retail payments.
- To enable banks to route the Aadhaar initiated interbank transactions through a central switching and clearing agency.
- To facilitate disbursements of Government entitlements like NREGA, Social Security pension, Handicapped Old Age Pension etc. of any Central or State Government bodies, using Aadhaar and authentication thereof as supported by UIDAI.
- To facilitate inter-operability across banks in a safe and secured manner.
- To build the foundation for a full range of Aadhaar enabled Banking services.

## Services Offered by AEPS

- Balance Enquiry
- Cash Withdrawal

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### Digital Banking Recollected questions:::

- 1.CTS abbreviation cheque truncation system
2. What is firewall?: A software programme for protecting against unauthorized access to the information.
- 3.BBPS ... Bhart Bill payment system
- 4.MDR: merchant discount rate
5. minimum amount which can be remitted under RTGS by a customer: Minimum Rs. 2 lac and no Maximum.
- 6.Max amount of NEFT can be remitted ..no limit
7. AEPS stands for : Aadhar Enabled Payment System.
8. CPPC stands for : Central Pension Processing Cell.
9. IBPP stands for : Internet Bill Presentation & Payment.
10. Rupay Platform refers to: National Payments Corporation of India (NPCI) initiated the launch of RuPay card in India. It was done with the intention of integration of payment systems in the country. It has led to lower transaction cost as processing is being done within country. Also, transactions will be faster.
11. Encryption means: Conversion of plain language into secret language, i.e., coding and The extent of coverage under
12. Maximum RTGS Charge for Rs.2 lac to 5 lac: Rs.25.00 + service tax
13. Application under ASBA can be applied for: a) IPO b) Right Issue c) Mutual fund
14. E-sahyog portal:belongs to Income Tax
15. A Proxy server is for: To provide security against unauthorized users
16. Phising?: To steal the customers personal / confidential data

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:action customer will get money in 7 working days after compliant  
n Value  
orporation of India.  
SSD Platform.  
Equipment Identity.  
n Data.  
ss  
sion is established for:- Commodity futures  
cal Logical Unit  
ext Transfer Protocol  
an Financial Network  
rule  
ill Presentation & Payment  
'ayment Service - Mobile to account  
alled: Booting  
and guidelines for communication by EDI is called: EDIFACT.  
ed Services Digital Network.  
tomers: Min Rs.2 lac and no max  
e in INFINO PAYTECH Ltd : ICICI Bank

36. USSD: Unstructured Supplementary Service Data.
37. LAN: Local Area Network
38. AEPS stands for : Aadhar Enabled Payment System
- 39 ATM : Anywhere, anytime,
40. BCP- Business continuity Plan
41. First committee on computerization in banks was headed by: Dr C Rangarajan.
42. In an Organisation communication between the same organization, what type of system applicable:

Intranet

43. In CBS, signatures are loaded through scanning..
44. WAN: Wide area network
- 45.WAN uses ....interconnecting computers at different Geographical locations
- 46.CHI : Clearing Housing interface
- 47.ECE: electronic clearing system
- 48.APB: Aadhaar pay bridge
49. When in a computer network one network protocol encapsulates a different payload protocol, it is called: Tunnel.
- 50 Computer Security Day : 30th November
51. customer's account should be credited within how many days of the complaint?: 7 working
52. First step towards computerisation in Banking: Setting up ALPM (Advance Ledger Posting Machine)
53. CIDR: central identities data repository
- 54.BBPCU:Bharat bill payment central unit

Today Digital banking recollected

Aeps

Nach

Upi

Virtual keyboard to safeguard against keylogger

4 questions on process of chargeback

Nfc technology and RFID

Approx 8-10 question on security of POS terminals

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through pos called



re from BC

memory scrapping,  
jackpotting,  
Financial inclusion,  
Dispute Management System,  
CTS,

Digital marketing,  
internet banking, 2FA  
, AEPS,  
Keylogger Virtual keyboard,  
Pinterest ,  
Graffiti,  
OOH,  
brown level ATM,  
ekyc ,  
FI is backed by  
wat is Graffiti.

wat is CRM, customer Relationship  
Management and Internet banking.  
RTGS

wat is Rupay Paysecure Solution.  
Card.  
ABPS and NACH diffrence.  
KSA.  
OnUs transaction Diffrence.  
NG rtgs works on ISO 20022.

one questions on fraud in ATM card  
wat is RTGS and Next generation

Benefits of Rupay

wat is NACH and it's Role.

.wat is ASA and

.one question on NFS and EKYC.

Offus and

RTGS and NgTGS.

wat is CCIL clearing Corporation of India

wat is Diffrence between DVP-lll

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pliance and convenience. masquerading and Cyber

wat is MILTDOWN and

ne question on Telebanking.

MMID and MPIn wat

card and store value card

.credit and charge card diffrences.

.questions

MV chipbased

questuons on what Document requires for

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operating system hardening is a  
diffrence between Enduser risk and

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is mobile device risk. 40.one question on Spearphishing. 41.what is query service on Aadhar Mapper. 42.one question on firewall and intrusions detection system. 43.difference between encryption and Decryption. 44.difference between GPRS and PSTN POS. 45.difference between portable and Pooled terminal. 46.one question only on Mobile POS. 47.what is EKYC and its benefits. 48.what is Terminal Management System. 49.what is Mural-Advertising. 50.what is OOH out of home.....

Recollected Questions on Digital Banking Paper 1 July. 51.what is Graffiti. 52.what is CRM customer Relationship Management. 53.one questions on fraud in ATM card and Internet banking. 54.what is RTGS and Next generation RTGS 55.what is Rupay

Payments Solution. 56.Benefits of Rupay Card. 57.what is NACH and its Role. 58.ABPS and NACH difference. 59.what is ASA and KSA. 60.one question on NFS and EKYC. 61. Offus and OnUs transaction Difference. 62.RTGS and NgTGS. 63.NG rtgs works on ISO 20022. 64.what is CCIL clearing Corporation of India its Role and Functions. 65 .what is Difference between DVP-lll (Delivery vs payment and Payment Vs Delivey) System..

Recollected Questions. 66.difference between Compliance and Convenience. 67.masquerading and Cyber mugging. 68.what is Jeckpotting. 69.what is MILTDOWN and Spectrame. 70.one question on Telebanking. 71.MMID and MPIN what Digit giftcard prepaid card and store value card differences.

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rm and its signal turns into which colour green blue or Red. nishing. Q.83.the process of remain hidden Online is ack and Access.... Q 86.one question on Cash Advance. veen VOID and Refund. Q 88.SFMS. Q 89.Encoding 0..what is Rootkit. Q 91.Social engineering. Q 92.difference .93.OTP and Two factor Authenthication. Q.94.KeyStroke

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## GLOSSORY:

ne'

Interbank Financial Telecommunication

essaging System

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umber

d in the same building)

MAN: Metropolitan Area Network (used in the same city)

WAN: Wide Area Network (used in different locations)

IDRBT: Institute for development & Research in Banking Technology

Banknet: Payment System Network established by RBI

NICNFT: National Informatics Centre Network (currency chest operation)

WWW: World Wide Web

HTTP: Hyper Text Transfer Protocol

URL: Uniform Resource Locator

VSAT: Very Small Aperture terminal

Firewall: Software programme that restricts unauthorized access to data and acts as a security to private network

Booting: Starting of a computer

Hard Disk: A device for storage of data fitted in the processor itself

Modem: Modulator & Demodulator: A device used for converting digital signals to analog signals & vice-versa

Encryption: Changing the data into coded form

Decryption: Process of decoding the data

Virus: Vital Information Resources Under Seize: Software programme that slows down the working of a

~~computer or damages the data.~~ Main source of virus is internet (other sources are floppy or CD)

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programme used for preventing entry of virus or repairing the same

electronic records by a subscriber by means of electronic method or

key, there is a pair of keys, private key & public key

ment

ited, number of accounts credited

ited, number of accounts debited

g, destroying, altering any computer code used for computer network

You can use addresses to find files on the Internet and your computer.

addresses are also known as URLs.

#### IMPORTANT ABBREVIATIONS

AI – Artificial intelligence ,

ALGOL – Algorithmic Language ,

ARP – Address resolution Protocol,

ASCII – American Standard

Code for Information Interchange

BINAC - Binary Automatic Computer,

BCC – Blind Carbon Copy ,

Bin – Binary

BASIC - Beginner's All-purpose Symbollic

Instruction Code, BIOS – Basic Input Output System,

Bit – Binary Digit, BSNL – Bharat Sanchar Nigam Limited.

CC – Carbon Copy,

CAD – Computer Aided Design,

COBOL – Common Business Oriented Language, CD – Compact Disc, CRT –

Cathode Ray Tube ,CDR – Compact Disc Recordable ,

CDROM – Compact Disc Read Only Memory,

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or,

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cess Memory,

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/DROM –

DVD Read Only Memory ,DVDRW –DVD Rewritable ,  
DVR – Digital Video Recorder ,  
DOS – Disk Operating System  
EBCDIC – Extended Binary Coded Decimal Interchange Code ,  
e-Commerce – Electronic Commerce, EDP – Electronic Data Processing  
EEPROM – Electronically Erasable Programmable Read Only Memory,  
ELM/e-Mail – Electronic Mail, ENIAC - Electronic Numerical Integrator and Computer  
EOF - End Of File  
EPROM - Erasable Programmable Read Only Memory,  
EXE - Executable  
FAX - Far Away Xerox/ facsimile ,FDC - Floppy Disk Controller, FDD - Floppy Disk Drive ,FORTRAN - Formula Translation, FS -  
File System  
FTP - File Transfer Protocol  
GB – Gigabyte ,  
GIF - Graphics Interchange Format,  
GSM - Global System for Mobile Communication

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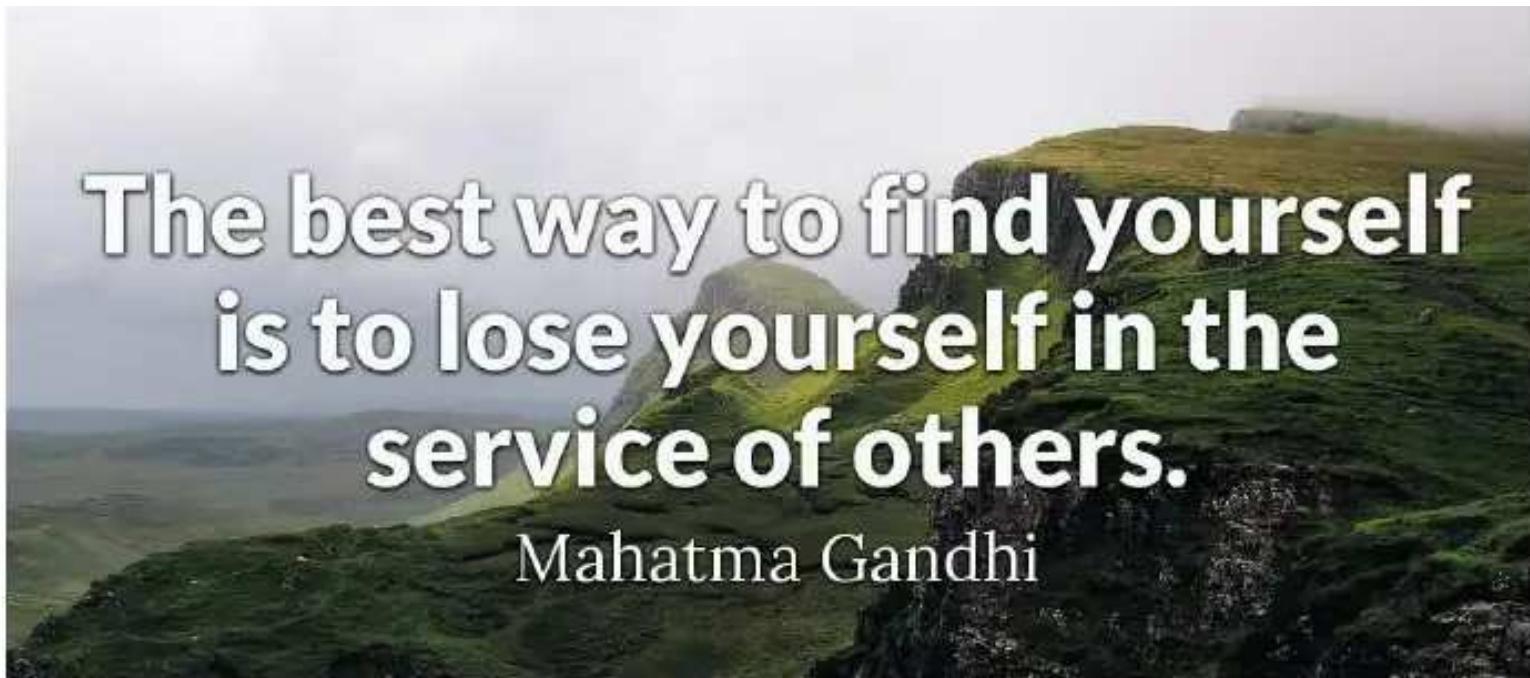
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**The best way to find yourself  
is to lose yourself in the  
service of others.**

Mahatma Gandhi

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