

# Bitcoin: Understanding the Basics of Digital Currencies

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Bitcoin is a hot word these days. Many know that it is related to money or currency. But what exactly is Bitcoin? Why is it in news? What is hot about it? Why has Reserve Bank of India warned about Bitcoins? Let's see each of these questions in detail in this article.

## What is Bitcoin?

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Bitcoin is a type of **digital currency** that enables instant payments to anyone. Bitcoin was introduced in 2009. Bitcoin is based on an open source protocol and is not issued by any central authority. Bitcoin is a peer-to-peer currency. Peer-to-peer means that no central authority issues new money or tracks transactions. These tasks are managed collectively by the network.

“Bitcoin”, capitalised, refers to the protocol and transaction network whereas “bitcoin”, lowercase, refers to the currency itself. So, having learned that bitcoins correspond to a virtual currency, let's sum up.

- Bitcoin is the first decentralised digital currency.
- Bitcoins are digital coins you can send through the Internet.
- Compared to other alternatives, Bitcoins have a number of advantages. Bitcoins are
- transferred directly from person to person via the net without going through a bank or clearinghouse. (This means that the fees are much lower, you can use them in every country, your account cannot be frozen and there are no

prerequisites or arbitrary limits.)

## How does Bitcoin work?



1. Bitcoins are generated all over the Internet by anybody running a free application called a **Bitcoin miner**.
2. Mining requires a certain amount of work for *each block of coins*.
3. This amount is automatically adjusted by the network such that Bitcoins are always created at a predictable and limited rate.
4. Your Bitcoins are stored in your digital wallet which might look familiar if you use online banking.
5. When you transfer Bitcoins, an electronic signature is added.
6. After a few minutes, the transaction is verified by a miner and permanently and anonymously stored in the network.

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**More info:** Bitcoin uses public-key cryptography, peer-to-peer networking, and proof-of-work to process and verify payments. Bitcoins are sent (or signed over) from one address to another with each user potentially having many, many addresses. Each payment transaction is broadcast to the network and included in the *blockchain* so that the included bitcoins cannot be spent twice. After an hour or two, each transaction is locked in time by the massive amount of processing power that continues to extend the *blockchain*. (Bitcoin blockchain is a database which holds information about all transactions.) Using these techniques, Bitcoin provides a fast and extremely reliable payment network that anyone can use.

# Why do you need Bitcoins? What are the advantages of Bitcoins?



Advocates of Bitcoins highlights the following points in favour of bitcoins.

- The Bitcoin software is completely open source and anybody can review the code. Bitcoin is changing finance the same way the web changed publishing. When everyone has access to a global market, great ideas flourish.
- Let's look at some examples of how Bitcoins are already used today:
  1. You can purchase video games, gifts, books, servers and alpaca socks.
  2. Several currency exchanges exist where you can trade your Bitcoins for dollars, euros and more.
  3. Bitcoins are a great way for small businesses and freelancers to get noticed.
  4. It doesn't cost anything to start accepting them, there are no chargebacks or fees and you'll get additional business from the Bitcoin economy.

Additional Info:

- Bitcoins are sent easily through the Internet, without needing to trust any third party.
- Transactions:
  - Are irreversible by design
  - Are fast. Funds received are available for spending within minutes.
  - Cost very little, especially compared to other payment networks.
- The supply of bitcoins is regulated by software and the agreement of users of the system and cannot be manipulated by any government, bank, organisation or individual.
- The limited inflation of the Bitcoin system's money supply is distributed evenly (by CPU power) to miners who help secure the network.



## Are Bitcoins limited?

The total possible number of bitcoins are around 21 million. A bitcoin was valued at \$10 on October 2012 but it leaped to around Rs 67,000 (a little over \$1000) on December 2013.

## How to get Bitcoins?

1. Exchanges with local currency.
2. Mine.
3. Sell something and get bitcoins in return.

## Why is RBI not an advocate of Bitcoins?



The Reserve Bank of India points out that users expose themselves to potential financial, legal and security-related risks when they deal in virtual currencies like bitcoins.

In its list of potential risks, the apex bank highlights problems such as losses arising out of hacking, no sources of customer recourse and the general financial volatility surrounding Bitcoins.

“The creation, trading or usage of virtual currencies including Bitcoins are not authorised by any central bank or monetary authority. As such, there is no established framework for recourse to customer problems,” the RBI said in a statement.

A number of India-based trading platforms and exchanges have sprung up over the last six months, catering to Indian users by allowing them to purchase Bitcoin in rupees. The RBI, however, has pointed out that no regulatory approval has been obtained by any entities that carry out such activities.

## Arguments against Bitcoins

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- Assets are not backed by tangible entities such as land.
- Wastes computer power.
- Enables crime.
- Encourages anarchy.
- It's very much still an experimental currency and is a high-risk environment for consumers and investors at the moment.

## Bitcoins and UPSC: Probable Questions

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Bitcoins can be a topic in UPSC Prelims, Mains or Interview.

- For UPSC Interview: Can Bitcoins replace Indian Rupee? If yes, explain why?
- For UPSC Mains: What are bitcoins? Analyse the effectiveness of bitcoins in the background of recent RBI observations.
- For UPSC Prelims: Which among the following statements about bitcoins are true? (1- In India, RBI control the Bitcoin market. 2 – Bitcoins are free from inflation and deflation. 3 – The total possible number of Bitcoins are limited. 4 – Bitcoins help in preventing money laundering and illegal trading. Choices: A – 1 only, B – 1, 2, 4 only, C – 3 only, D – All the above)

