Explain any 4

1. Explain the process of Smart Contracts with an example.
2. What is Immutable Ledger? What is the difference between traditional ledger and immutable ledger?
3. Explain Byzantine Fault Tolerance?
4. What is Ethereum? In which application is it used?
5. Explain Decentralized Applications. How is it different from today’s applications?

**Answers**

1. Smart Contracts is basically an advanced version of contracts which are self-executing in nature. It stored in the form of a computer code. These contracts are between a buyer and a seller without the interference of a middle party. These contracts get executed immediately after the discussed conditions are met without the need of any action either on the buyer’s end or the seller’s end with respect to the transactions. All the terms of the agreement are trackable (can be found) and are immutable in nature (cannot be altered) and exist on a decentralized/distributed blockchain network.
2. Immutable Ledger means a record that cannot be altered. This ensures the credibility and trust aspect of a record being true in nature. This is achieved by the concept of hashes (backed by mathematics on the blockchain network) and the records can be accessed only by authorized users (who are people directly impacted by the record).

Differences between an immutable ledger and a traditional ledger are:

* Traditional ledgers are handled by government officials or lawyers apart from the people directly involved. There are no middlemen in immutable ledger
* Traditional ledgers take days to be executed whereas immutable ledgers take minutes.
* Traditional ledgers are not as transparent as the immutable ledgers
* Traditional ledgers have limited security whereas immutable ledgers are cryptographically secured.

1. Byzantine Fault Tolerance
2. Ethereum is the world’s second largest cryptocurrency (followed by bitcoin). The thing that is special about Ethereum is that it is the first platform to facilitate the creation of decentralized applications. It is opensource in nature and features the smart contract functionality.

It is used in Coinbase Wallet, which is a Ethereum mobile browser with a token wallet, chat and dApp portal. (This is an example of the Banking for everyone point where people can gain access to financial services with just an internet connection)

1. Decentralized applications (also called dApps) are applications similar to the ones we use through the google play store. The main difference is that dApps are built on the blockchain network. Apart from this:

* The data is stored on the app itself as opposed to saving them on servers (this is the case with current apps).
* These apps are not free as blockchain-based transactions are expensive and the applications are also usually the ones which offer more value than the value of the transaction itself.
* They have the concept of using peer-to-peer network making it decentralized as opposed to giving authority to a single authority.
* The unique selling point of blockchain is its security and this is achieved by a thorough verification process which takes longer than the ones today’s applications take.