Q1: How is blockchain technology different from bitcoin?
Ans:

BLOCKCHAIN:

Definition: A blockchain is a decentralized, distributed ledger. This ensures that the record cannot be changed. It serves as a secure, transparent, and immutable ledger for any type of data not just finance

Features of Blockchain: Main features of blockchain are as follows:

- Security
- Transparency
- Decentralization

Application: It can be used for many things not just for cryptocurrencies

Security: It uses cryptographic techniques to ensure security and data integrity

BITCOIN:

Definition: Bitcoin is a type of cryptocurrency, a digital currency that uses cryptography for security. It is the first of its type and is widely used and known.

Functionality: It aims at peer to peer transactions without the need for any central authority such as banks.

Purpose: Its main purpose is to provide a secure, decentralized way for transactions over the internet. It was created as an alternative to traditional currencies.

Technology: Bitcoin works on the underlying technology of blockchain. Bitcoin is one specific application of blockchain

DIFFERENCE:

Bitcoin and blockchain are closely related concepts, but they serve different purposes and have distinct characteristics. Bitcoin is a type of digital currency, often referred to as a cryptocurrency. It was the first decentralized digital currency, created by an unknown person or group of people using the name Satoshi Nakamoto. Bitcoin is used primarily as a medium of exchange, a store of value, and an investment. People can use Bitcoin to make transactions, similar to how they use traditional currencies. The total supply of Bitcoin is capped at 21 million coins, creating a scarcity that is designed to mimic precious metals like gold and enhance its value through limited availability.

On the other hand, blockchain is a distributed ledger technology (DLT) that records transactions across a network of computers. It is the underlying technology that powers Bitcoin, but its applications go far beyond cryptocurrencies. Blockchain technology enables the creation of a secure and immutable record of transactions, which can be used in various industries, including finance, supply chain management, healthcare, and more. Each block in a blockchain contains a list of transactions, and these blocks are linked together in a chain, ensuring that once data is recorded, it cannot be altered or deleted.

The primary purpose of blockchain is to provide a transparent and secure way to record transactions without the need for a central authority. This decentralized nature of blockchain ensures that no single entity has control over the entire network, enhancing security and reducing the risk of fraud. While Bitcoin uses blockchain technology to operate as a digital currency, blockchain itself can be used to build various applications that require secure and transparent record-keeping.

Q2: Prepare a one-page point of view on "Challenges that discourage organizations to collaborate in the current landscape and how blockchain can help circumvent these challenges."

Ans: Following are the various that discourage organizations and their solutions:

1. Trust Issues:
    - Organizations don't want to share information due to concerns about data integrity and potential misuse
    - Fear of data being altered or misinterpreted when shared among multiple organizations
2. Data Security Concerns:
    - Sensitive data may be exposed during collaboration.
3. Intermediary Dependency
    - Reliance on banks or other organizations increases costs and delays
    - Centralized systems are vulnerable to attacks and outages
4. Operational Inefficiencies:
    - Ledgers are written by hand and stored which results in delays and errors
    - Different systems and standards across organizations hinder seamless data exchange.

How blockchain can help circumvent these challenges:

1. Blockchains immutable nature that once data is recorded, cannot be altered
2. Decentralized mechanism ensures that all the parties involved see the same data which in turn facilitates trust
3. Advanced Encryption techniques protect data from unauthorized access and tampering
4. Blockchain enables selective data sharing allowing organizations to send only relevant information while keeping sensitive data private.
5. Blockchain allows for peer to peer transactions without the need of intermediaries

6. Automated contracts execute predefined actions when conditions are met, reducing the need for manual intervention and minimizing errors.
7. Blockchain provides a uniform platform for data exchange, facilitating interoperability among different systems.

Q3: Blockchain Platforms: Strengths and Weaknesses

1. Ethereum

Strengths:

- Allows automated, self-executing contracts
- Many developers and applications
- Supports various applications across industries

Weaknesses:

- Slow and expensive
- Concerns about energy consumption

2. Hyperledger Fabric

Strengths :

- High privacy for business use.
- Can be tailored to specific needs.
- Handles large enterprise applications well.

Weaknesses :

- Hard to set up and maintain.
- Fewer tools and applications compared to Ethereum.

3. Corda

Strengths :

- Great for financial services.
- Transactions visible only to involved parties.
- Works well with existing financial systems.

Weaknesses :

- Mainly for financial applications.
- Not as widely used.

4. Ripple

Strengths :

- Quick and low-cost transactions.
- Many banks and financial institutions use it.

Weaknesses :

- More control by a central entity.
- Legal challenges, especially in the US.

5. EOSIO

Strengths :

- Handles many transactions per second.
- Easy for developers and users.

Weaknesses :

- Governance models can be too centralized.
- Resource allocation is tricky for new users.

6. Stellar

Strengths :

- Great for cross-border payments.
- Very cheap transactions.

Weaknesses :

- Competes with similar platforms like Ripple.
- Not as widely used.

7. Tezos

Strengths :

- Easy upgrades and changes.
- High level of contract security.

Weaknesses:

- Can be hard to manage.
- Still developing and gaining users.