1=> Consences is one of the largest Blockchain company in the world.

2=> The blockchain is poised to innovate and transform wide range of application including:

a- goods transfer =>for ex- supply chain

b- digital media transfer => for ex- sale of art

c- remote services delivery=> for ex- travel and tourism

d- decentralized business logic=> for ex- move computing to data sources

e- distributed intelligence=> for ex- education credentialing

f- distributed resources=> for ex- power generation and distribution

g- crowd funding=> for ex- startup fund raising

h-crowd operations=> for ex- electronic voting

i- identity management=> for ex- one id for all your life's functions

j=>government public records => for ex- open governing

3=> Two major contribution of bitcoin cryptocurrency are

a- digital currency system

b- autonomous decentralized application

4=> blockchain establishing trust and security by:

a- validation

b-verification

c- consensus

d- immutable recording

5=> fundamental concept of bitcoin network is unspent transaction output(UTXO).

=> it is referenced as input and output in a transaction.

=>These form the inputs and outputs for transactions

6=> Now let's review the role of the UTXO's in a Bitcoin Blockchain.

=> The transaction uses the amount specified by one or more UTXOs and transmits it to one or more

newly created output UTXOs, according to the request initiated by the sender.

A transaction generates new UTXOs for transferring the amount specified in the input UTXOs.

7=> structure of UTXO includes :

a=> unique identifier that created UTXO

b=> index of UTXO

c=> value

(optional)d=> condition under which output can be spent

8=> transaction includes:

a=> reference no of current transaction

b=> reference to one or more input UTXOs

c=> reference to one or more (newly generated)output UTXOs

d=> total input and output amount

9=>The algorithm for consensus in the Bitcoin blockchain is called Proof of work protocol because it involves “work” or computational power to solve

the puzzle and to claim the right to form the next block.

10=> Transaction confirmation is independently performed by all miner nodes.

Miners are powerful computer executing software defined by the Blockchain protocol. Computers that validate and process blockchain transactions and solve the cryptographic puzzle to add new blocks

11=> how do miners work?

=> take on added work or computation to verify transactions,

=> broadcast transactions,

=> compete to claim the right to create a block

=> work on reaching consensus by validating the block,

=> broadcasting the newly created block and confirming transactions.

12=>Transaction 0 in every block in the bitcoin blockchain:

=>is for paying the miner fees.

=>does not have any input UTXO.

=>is called the coinbase transaction

13=> Bitcoin enable a decentralized system for exchange of value because blockchain is about enabling peer-to-peer transactions in a decentralized network.

14=> A block in a blockchain has a header of information about the block and set of valid transactions.

15=>The genesis block is the first block of a blockchain.

16=>no of transactions are there in the Genesis block in Bitcoin is 1

17=>no of transactions are there in the Genesis block in Ethereum (other than the transaction for Miner fee) are 8893.

18=>transactions recorded in a blockchain on a distributed immutable ledger

19=>Blockchain was created to support security and trust in a decentralized trustless environment of the cryptocurrency Bitcoin.

20=>basic operations in a blockchain:

=>validation transaction

=>gathering transactions for a block

=>broadcastiong valid transactions and blocks

=>consensus on next block creation

=>chaining blocks

21=>three types of blockchain

=>only cryptocurrency=> bitcoin

=>currency + business logic=> ethereum

=>only buisness logic=> hyperledger

22=>blockchain categories

=>public=>bitcoin blockchain all supported by its public paticipants. In a public blockchain, a

participant can join and leave the blockchain as and when they wish. you can also create a new currency by modifying bitcoin code.

=>private => access limited to participants within an organization. this restriction helps in simplyfying the normal operation such as block creation and consensus model.

=>permissioned=> consortium blockchain. it is meeant for consortium of collaborating parties to transact on a blockchain for ease of governance provinance and accountability for ex=> consortium of automobile companies or healthcare organizations.