JNTU-H Blockchain Course.

Assignment -1:-

1) What is Mining and explain its significance with respect to bitcoin? How much computation power is required for it?

Mining is a process of creating new digital "coins". The process of recovering these coins requires solving complex puzzles, validating cryptocurrency transactions on a blockchain network and adding them to a distributed ledger to locate them.

Bitcoin is the 1st ever "decentralized digital currency" that allows peer-to-peer transfers without any intermediaries such as banks, governments, agents or brokers, using underlying technology of "blockchain" system.

Bitcoin mining Refers to ensuring that transaction are valid and added to Bitcoin Blockchain. correctly using a global Network of computers running Bitcoin code. The process of mining is also the means by which new Bitcoins are created.

Solving these puzzles requires powerful computing power and sophisticated equipment. In return miners are rewarded with Bitcoin.

Mining Requirements :-

→ Hardware GPU (Graphics processing Unit), SSD - Solid state drive for crypto mining or) ASIC - application specific integrated circuit.

→ Mining Software

→ A wallet

→ Preffered mining pool

Once all these are set-up and the system fired up, it performs the mining process autonomosly. Any other human involvement comes in the event of system or network failure, power outage, or regular system maintainance.

Currently if you mine a block, the reward is 6.25BTC

One Bitcoin transaction takes 1449 kWh to complete.

Each Bitcoin block takes 10 minutes to mine.

Blockchain works on Merkle Tree & SHA-256 Algorithm which has the 64-Digit Hexadecimal Number. To decode it takes a lot of computational power.

So the hardware needs to have computational power in Hash/sec. The most powerful ASIC rigs has a hash rate of 110TH/s.

Assignment : 2.

Explain the properties of Blockchain and mention one property which you like the most.

1) Immutability → It means it can't be changed or altered. That is the technology is permanent and unalterable network.

Every node on system has a copy of the digital ledger. To add a transaction every node needs to check its validity.

This makes it next to impossible to corrupt.

2) Decentralized :→ Means doesn't have a governing authority there a group of nodes maintain the network making it decentralized.

3) Distributed Ledgers → This is a public ledger. which means it is open & nowhere to hide.

4) Consensus → a decision making process for group of nodes. active of network. It makes the blockchain decentralized

5) Faster & Safer :→ Traditional banking systems are slow. Sometimes it can take days to process a transaction. But Blockchain offers faster transactions in a safer environment where every transaction can be tracked down. It saves a lot of time & money.

I personally like Decentralization of it which makes it an independent entity. No governing body makes it more easy to operate. It makes it much simpler to use.

It is also independent of Rules & regulation set by the Govt.

→ "Less failure": Because it fully organized
→ "User Control": No relying on 3rd Party
→ "Zero Scams": As it is run by algorithms
→ "Transparency": Transparent profile of every participant
→ "Authentic Nature": Can't hack it.