**MCQ BLISS Unit 1**

**Q1 What is a blockchain?**

A combination of centralized ledgers

A type of cryptocurrency

An exchange of distributed information

A distributed ledger on a peer to peer network

**Q2 What does a block in a blockchain consists of?**

Hash point, time stamp, transaction data

Hash point, IP of owner, transaction data

Blockchain name, IP of owner, transaction data

Hash point, time of stamp, IP of owner

**Q3 What is a node?**

The first block of a blockchain

A computer on a blockchain

A line in a distributed ledger

An exchange of cryptocurrencies

**Q4 When a record is in a chain, who can access it?**

Nobody

Everybody

One person at a time

Only the people involved in the transaction

**Q5 When a record is submitted in a blockchain, how can you alter it?**

You need the public and private key to modify the record

Once submitted, records cannot be altered

Only a miner has the right to modify a record in a certain timeframe

Only smart contracts have the right to modify the record

**Q6 What are the different types of token?**

Platform, privacy, currency

Platform, distributed, currency,

Network, distributed, currency

Platform, privacy, generic

**Q7 What is miner?**

A cryptographic algorithm

A secured distributed ledger

A person doing calculation

Computers that validate and process blockchain transactions

**Q8 What is a fork?**

The copy of a block

The creation of an alternative version of a blockchain

The creation of a new distributed ledger

The copy of a cryptocurrency wallet

**Q9 What is the ledger type used by Bitcoin?**

Decentralized ledger

Distributed ledger

Distributed and decentralized ledger

None of the above

**Q10 What is a smart contract?**

A smart contract is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract

Computer code running on top of a blockchain containing a set of rules under which the parties to that smart contract agree

The two definitions hereunder are correct

None of the definitions hereunder are correct

**Q11 What is Ethereum?**

The name of a public blockchain

The name of a peer to peer network

A commercial blockchain-based protocol featuring a smart contract manager

An open-source blockchain-based distributed computing platform featuring smart contract functionality.

**Q12 What is the name of the language used within Ethereum to implement smart contracts?**

Python

Solidity

Java

Algol 68

**Q13 What is a dApp?**

A mobile application portable on any mobile operating system

A kind of public blockchain

A decentralized application

A type of smart contract

**Q14 What are the main cryptographic concepts in blockchain?**

Hashing and public key

Login and digital signature

Hashing and digital signature

Pin code and hashing

**Q15 Which is NOT part of asymmetric encryption?**

Hashing

Public key

Passphrase

Private key

**Q16 When is there a consensus?**

When, in a smart contract, the private key and the public key matche

When the value of a bitcoin proposed by a seller is accepted by a buyer

When several nodes (usually most nodes on the network) all have the same blocks in their locally-validated best blockchain

When a smart contract executes the rules agreed by all parties

**Q17 What are the different types of blockchain?**

Public, private, generic

Public, secret, consortium

Generic, secret, consortium

Public, private, consortium

**Q18 What is a sidechain?**

Any mechanism that allows tokens to be securely transferred from one blockchain to another blockchain

The copy of all the nodes of a blockchain in a parallel blockchain for security reason

The name of the new blockchain generated by the fork of an existing blockchain

None of the above

**Q19 What is ERC20?**

The ISO standard for the implementation of public blockchains

The European standard for the implementation of smart contracts

The technical standard used for smart contracts on the Ethereum blockchain for implementing tokens

The European Central Bank governance standard controlling the value of the bitcoin

**Q20 What is a DAO?**

Decent Algorithms Organization, providing free blockchain algorithms to blockchain developers

Decentralized Autonomous Organization, one of the most complex forms of smart contracts

Dematerialized Assets Opt-in, the option permitting the transfer of cryptocurrencies in a smart contract

Differed Access Option, a mechanism allowing miners to postpone the validation of blocks

**Time categorisation exercises BLISS Unit 1**

**What are the features of Blockchain?**

The key features of blockchain are:

* Distributed Database,
* Decentralized Systems,
* Distributed Ledger,
* Safer and Secure Ecosystem.

**Why do we need decentralized systems? Benefits of blockchain Technology?**

Decentralization benefits are:

* Entitle users,
* Fault tolerance,
* Durability and robustness,
* Faster transaction time.
* Lower cost for transactions.
* Transparency,
* Data authenticity.

**Short response questions BLISS Unit 1**

**Are there any network specific conditions for using Blockchain technology in an organization?**

There is no specific condition on using it. However, the network must be a peer-to-peer network under the concerned protocols.

**How is a block recognized within the Blockchain approach?**

Every block during this online ledger essentially consists of a hash pointer that acts as a link to the block that is before it, transaction knowledge and in fact a stamp of time.

**How do You define cryptocurrency?**

A digital store of monetary value the primary use of which is for buying and selling goods, services, or property, such as bitcoin or litecoin. Cryptocurrencies are cryptographically secured against counterfeit and often are not issued or controlled by any centralized authority.

**What is an ICO?**

An Initial Coin Offering is somewhat similar to an IPO in the non-crypto world. Start-ups issue their own token in exchange for ether or bitcoin. This is essentially crowdfunding in exchange for a token.

**What is Ether?**

Ether, sometimes referred to as Ethereum, is the cryptocurrency used within the Ethereum network. To use the network and run the Ethereum Virtual Machine (EVM), you need Ether.

**What is gas?**

Gas is the unit used in Ethereum to execute smart contracts. It measures how much work an action takes and monetizes it. Every operation costs a certain amount of gas. The more complex operations and contracts are, the more computational resources used, the higher the cost of gas.

**What are the principles of private blockchains?**

Private blockchains are also called permissioned blockchains and are basically the opposite of public blockchains. There is one owner (usually a company) and they can delete and override commands if needed. Private blockchains can keep key information secure and confidential. They’re also much faster than public blockchains since they don’t require the consensus of thousands of nodes to run.

**What is a trapdoor function?**

A trapdoor function is a function that is easy to compute in one direction but difficult to compute in the opposite direction unless you have special information. Trapdoor functions are essential for public key encryption—that’s why they are commonly used in blockchain development to represent the ideas of addresses and private keys.

**What are the particularities of a dApp?**

An App usually consists of a client which communicates to some centralized resources. There is a mid-tier connecting to a centralized data tier. If information in the centralized data tier is lost, it cannot be recovered easily. DApp means Decentralized Application and interact with the network via Smart Contracts. The data they work with resides in the contract instance.

**What is a nonce in a Blockchain?**

In cryptography, a nonce is an arbitrary number that can only be used once. It is often a random or pseudo-random number issued in an authentication protocol to ensure that old communications cannot be reused in replay attacks.

**What is double spending?**

Double-spending is the result of successfully spending some money more than once. Bitcoin is the first to implemente a solution in early 2009 which protects against double spending by verifying each transaction added to the blockchain to ensure that the inputs for the transaction had not previously already been spent.

**Case studies BLISS Unit 1**

**CASE 1: Nonprofit organizations**

**Introduction**

Most people are kind and have donated to charities at some point in their life, but how can you be sure you’re donating to a legitimate charity? No one wants to give money to a “homeless” guy and then see him get into his Mercedes moments later. It hardens people’s hearts when they feel scammed, and they become less likely to help in the future.

**The solution : Transparent charity spending**

Although the blockchain won’t eliminate all issues with charitable organizations, it will help donors know precisely who they are donating to by adding full transparency to donation spending. This can be achieved through open tracking of performance, DAOs that allow people to vote on the uses of funds, and cryptocurrencies allow for access to more funds and more PR for a charity.

Currently, charities are established as legal entities, like corporations but with different qualifying rules and more paperwork. In the future, you could create charities as blockchain entities. The requirements to be a charity would be encoded in smart contracts, and there would be a reduction in fees and time associated with their initial setup since you are reducing the need for a central planner to do it.

Another way the blockchain is going to help charities financially is by reducing administrative costs. More donations will be able to go to people that need these funds by reducing the need for administrators. That three cents on the dollar mess can be a thing of the past.

A DAO is a Decentralized Autonomous Organization. This means that the rules encoded into the organization are transparent and are controlled by shareholders, not a central authority that could easily doctor their books.

Platforms like Alice, which is built on the Ethereum blockchain, take part of their revenue and redistribute it as grants to help social organizations launch projects. Users vote to decide on what projects get funded. This takes a lot of the politics out of charity and gives donors democratic input.

**Examples**

Helperbit, Bitgive, and Disberse are all platforms helping charities implement blockchain technology that do not have the technical knowledge to utilize the technology on their own.

Charities Aid Fundtaion (CAF) is a charity and bank for better giving to help donors, companies, and charities by essentially acting as a broker for charities. They gather funding and take a percentage of it. CAF offers banking, loans, and savings accounts for charities and individuals. They have in-depth videos and articles on how the blockchain will affect charities.

**Donating cryptocurrencies**

The Pineapple Fund was established by an anonymous crypto enthusiast that goes by Pine who donated 5,104 Bitcoins that were turned into $55 million at the height of the market to differing charities.

Because cryptocurrencies are global there is no need for charities to handle conversion rates if they are spending the crypto but they can also convert into the fiat currency of the charity’s headquarters if desired. With more vendors and employees accepting crypto as their payment, these conversions will not be as necessary in the future.

**VIDEO support**

<https://youtu.be/CJzvp3u8vbg>

*Reference :* [*www.blockchain.wtf*](http://www.blockchain.wtf)

**CASE 2: Education**

**Introduction**

From securing student data to verifying credentials, there’s improvements to be made in the field of education.

Education has evolved so much over such a short amount of time. So all those times digging through card catalogs and encyclopedias were rendered completely useless once Google was a thing. The Internet fundamentally changed how people learn, and that of course changed the way we teach.

**How can blockchain impact the field of education ?**

The easiest answer is verifying credentials and previous professional experience. Every so often you hear about a “professor” who ends up not being who he or she says they are. They might embellish their previous experiences in order to get a job or look like they have more experience then they really do. These untrustworthy individuals invade the academic space, and undermine its credibility.

In the short term, blockchains provide a simple and encrypted way of ensuring that a person is qualified and educated enough to fulfill the requirements for a position. They provide a plausible means of security for employers and employees to prove their credentials in certain areas. As blockchains are immutable ledgers, it would be difficult to lie or say you have taken coursework that you truly have not taken coursework in. It would be easy for employers to authenticate this information.

Currently universities around the world have begun implementing blockchain technologies to monitor and keep account for transcripts and qualifications for students and educators. Like MIT who is testing « Blockcerts ».

« Learning is earning » is a company that has invented the idea of “edublocks,” which can be collected by various institutions and community centers to collect credits or prove that a person has taken classes about certain topics and subjects, and also allows others to use their credentials to be teachers or mentors.

Blockchains also offer a secure database for student test scores. Some parents have begun to question the security of these systems. They track a great deal of information on students, and this information is being held online. Not only does this data hold substantial amounts private information that should not be accessible to all, but it also holds a great deal of information for teachers. Blockchains can provide the security for students, parents, teachers, school districts, and companies.

**VIDEO support**

<https://youtu.be/KHUGRmTnjKE>

*Reference :* [*www.blockchain.wtf*](http://www.blockchain.wtf)