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CBDH

BTA Certified Blockchain Developer – Hyperledger

Version 1.0

Exam A

QUESTION 1
Level DB is the default database for Hyperledger Fabric and is particularly appropriate when ledger states comprise what type of data?

A. Complex key-value pairs
B. Rich Queries
C. JSON data pairs
D. Simple key-value pairs

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Simple key-value pairs - LevelDB is the default and is particularly appropriate when ledger states are simple key-value pairs. A LevelDB database is closely co-located with a network node – it is embedded within the same operating system process. CouchDB is a particularly appropriate choice when ledger states are structured as JSON documents because CouchDB supports the rich queries and update of richer data types often found in business transactions. Implementationwise, CouchDB runs in a separate operating system process, but there is still a 1:1 relation between a network node and a CouchDB instance. All of this is invisible to chaincode.

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/ledger/ledger.html

QUESTION 2
When creating a network according to an organization's structure and also bootstrap a channel what are the following artifacts we would need to generate?

A. Genesis Block, License File and Anchor Peer Configs for each organization.
B. Genesis Block, ledger Configuration and Anchor Peer Configs for each organization.
C. Genesis Block, Channel Configuration and Anchor Peer Configs for each organization.
D. Genesis Block, Channel Configuration and Anchor MSP Configs for each organization.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To create a network according to an organization's structure, and to bootstrap a channel, we will need to generate the following artifacts: A genesis block, containing organization-specific certificates that serve to initialize the Fabric blockchain. Channel configuration information. Anchor peer configurations for each organization. An anchor peer serves as a fulcrum within an organization, for cross-organization ledger syncing using the Fabric gossip protocol.

QUESTION 3
Which Hyperledger tool would you select to invoke, deploy or query blocks, transactions and associated data, network information (name, status, list of nodes), chain codes and transaction families, as well as other relevant information stored in the ledger?

A. Hyperledger Quilt
B. Hyperledger Cello
C. Hyperledger Caliper
D. Hyperledger Explorer

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger explorer: Hyperledger explorer, which was originally contributed by IBM, Intel, and DTCC, can view, invoke, deploy or query blocks, transactions and associated data, network information (name, status, list of nodes), chain codes and transaction families, as well as other relevant information stored in the ledger.

QUESTION 4

Blockchain services consists of three major components.
What are they? (Select three.)

A. Consensus Manager
B. Distributed Ledger
C. Peer to Peer Protocol
D. Reputation Manager
E. Membership Services

Correct Answer: ABC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
1. P2P Protocol is implemented over HTTP/2 standards and uses Google RPC.. P2P components define messages used by peer nodes, from point to point to multicast. 2. Distributed Ledger manages the world state and the transaction log in the blockchain. 3. Consensus Manager defines the interface between the consensus algorithm and the other Hyperledger components.

QUESTION 5 The gossip data dissemination protocol performs which three functions?
(Choose three.)

A. Manages peer discovery and channel membership
B. Disseminates ledger data across all peers on the channel
C. Manages channel membership only
D. Sync ledger state across all peers on any channel
E. Sync ledger state across all peers on the channel
F. Manages peer discovery only

Correct Answer: ABE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Gossip Protocol The gossip data dissemination protocol performs three functions Manages peer discovery and channel membership Disseminates ledger data across all peers on the channel Syncs ledger state across all peers on the channel.

Reference: https://hyperledger-fabric.readthedocs.io/en/v1.1.0-alpha/gossip.html

QUESTION 6 The Hyperledger Fabric framework is implemented on what programming environment?

A. C++
B. Node.js
C. Go
D. PHP
E. Javascript
F. Python

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/prereqs.html

QUESTION 7

You would like to download Hyperledger Fabric.
What would be the command to start the process?

A. ftp clone https://github.com/hyperledger/fabric.sh
B. git clone https://github.com/hyperledger/fabric.git
C. ftp clone https://github.com/hyperledger/fabric.git

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://github.com/hyperledger/fabric.git

QUESTION 8
What Hyperledger sponsored tool is a new open-source application development framework, which simplifies the creation of Hyperledger Fabric blockchain applications, thus reducing the time and complexity of development.

The tool aims at helping users to create blockchain applications based on Hyperledger Fabric without needing to know the low-level (Go Programming) details involved in blockchain networks?

A. Hyperledger Quilt
B. Hyperledger Composer
C. Hyperledger Explorer
D. Hyperledger Cello

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
There is a new open-source application development framework, which simplifies the creation of Hyperledger Fabric blockchain applications, thus reducing the time and complexity of development. The tool aims at helping users to create blockchain applications based on Hyperledger Fabric without needing to know the low-level (Go Programming) details involved in blockchain networks.

QUESTION 9
The CA (Certificate Authority) in Hyperledger Fabric issues the certificates. These certificates are used for identity validation and for transmission of encrypted data that only the owner (person, organization or software) of a specific certificate is able to decrypt and read.

What types of certificates are issued by the CA?

A. tcert
B. ecert
C. rootcert

Correct Answer: ABC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Rootcert, tcert and ecert. As The CA (Fabric CA by default) issues a root certificate (rootCert) to each member (organization or individual) that is authorized to join the network. The CA also issues an enrollment certificate (eCert) to each member component, server-side applications and occasionally end users. Each enrolled user is granted an allocation of transaction certificates (tCerts). Each tCert authorizes one network transaction.

QUESTION 10 Hyperledger Composer has the following two
main components.

A. Composer Framework and a Business Network Archive
B. Composer Playground and a Business Network Configuration
C. Composer Playground and a Business Network Archive

D. Distributed Ledger and a Business Network Archive
E. Distributed Ledger and Composer playground

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
There are two parts: 1. Business Network Archive which essentially captures the core data in a business network, including the business model, transaction logic, and access controls, the Business Network Archive packages these elements up and deploys them to a runtime. Business Network Archive files are stored as ".bna" files. AND 2. Composer Playground which is web-based tool allows developers to learn Hyperledger Composer, model out their business network (domain), test that network, and deploy that network to a live instance of a blockchain network. The playground keeps the development model in browser storage, allowing them to be easily uploaded or downloaded.

QUESTION 11
What type of organization can be thought of as a corporation run without any human involvement under the control of an incorruptible set of business rules?

A. Limited Liability Corporation
B. Decentralized Autonomous Organization (DAO)
C. Corporation
D. Trust

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Decentralized Autonomous Organization (DAO) can be thought of as a corporation run without any human involvement under the control of an incorruptible set of business rules. A DAO can also be seen as the most complex form of a smart contract, where the bylaws of the decentralized organization are embedded into the code of the smart contract, using complex token governance rules.

QUESTION 12 Chaincode in Hyperledger Fabric is a decentralized transactional program which is running on the validating nodes. Chaincode implements the Chaincode interface in particular, Init and Invoke functions.

Which two statements about Chaincode is correct? (Select two.)

A. Init is called during instantiate transaction after the chaincode container has been established for the first time, allowing the chaincode to initialize its internal data
B. Invoke is called to update or query the ledger after a proposal transaction. Update state variables are committed to the ledger before the transaction is committed
C. Init is called during Instantiate transaction after the chaincode ledger has been established for the first time, allowing the chaincode to initialize its internal dataD. Invoke is called to update or query the ledger in a proposal transaction. Updated state variables are not committed to the ledger until the transaction is committed.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Chaincode is a decentralized transactional program, running on the validating nodes. As with every chaincode, it implements the Chaincode interface in particular, Init and Invoke functions. Init is called during Instantiate transaction after the chaincode container has been established for the first time, allowing the chaincode to initialize its internal data. Invoke is called to update or query the ledger in a proposal transaction. Updated state variables are not committed to the ledger until the transaction is committed.

QUESTION 13
Blockchain solutions are comprised of four building blocks. Which of the following answers list the building blocks?

A. Shared ledger, Privacy, Trust, and Smart Contracts or (Chaincode)
B. Shared ledger, Centralization, Trustless, and Smart Contracts or (Chaincode)
C. Shared ledger, Privacy, Trustless, and Smart Contracts or (Chaincode)
D. Shared ledger, Centralization, Trust, and Smart Contacts or (Chaincode)

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 14
An_____ is defined as a communication node that is responsible for the distribution of blockchain transactions in Hyperledger Fabric.

A. MSP
B. Peer Node
C. Client Node
D. Endorsing NodeE. Orderer

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Orderer Ordering services handles the main function of the Hyperledger Fabric to maintain consistency in the transactions processes. Ordering services provides a shared communication to clients and peers and helps in broadcasting the messages containing transactions.

QUESTION 15 The ledger system in Hyperledger Fabric uses what database by default?

A. CouchDB
B. LevelDBC. MySQL
D. MS SQL
E. PostGres SQL

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The ledger system in Hyperledger fabric uses levelDB. By definition, LevelDB allows concurrent writers to safely insert data into the database by providing internal synchronization. LevelDB uses very coarse-grained synchronization which forces all writes to proceed in an ordered, first-come-first-served basis, effectively reduces throughput to a single thread. State database options include LevelDB and CouchDB. LevelDB is the default key-value state database embedded in the peer process. CouchDB is an optional alternative external state database. Like the LevelDB key-value store, CouchDB can store any binary data that is modeled in chaincode (CouchDB attachment functionality is used internally for non-JSON binary data). But as a JSON document store, CouchDB additionally enables rich query against the chaincode data, when chaincode values (e.g. assets) are modeled as JSON data

QUESTION 16
Which of the following is a role in Fabric that has permission to create transactions and query network data?

A. Chain Transactor
B. Chain Administrator
C. Chain Auditor
D. Chain Member

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://fabric-docs-test.readthedocs.io/en/latest/glossary/#roles

QUESTION 17
Hyperledger is an open source project that came out of the _____. It was created in order to help advance _____blockchain technologies. It's a global open source collaboration involving leaders from numerous industries.

A. Linux Foundation, Cross Industry
B. Defense Industry, Military Communications
C. Linux Foundation, Military Communications
D. Defense Industry, Financial Oriented
E. Linux Foundation, Financial Oriented

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger is an open source project that came out of the LF and was created in order to help advance cross-industry blockchain technologies. It's a global open source collaboration involving leaders from numerous industries.

QUESTION 18
A transaction in Hyperledger Fabric is a request to the blockchain to execute a function on the ledger.

By what the function is implemented?

A. Chaincode
B. Service Account
C. SDK
D. API

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Chaincode is programmatic logic. A transaction is a request to the blockchain to execute a function on the ledger. The function is implemented by a chaincode. Aka smart contracts

Reference: http://hyperledger-fabric.readthedocs.io/en/release-1.1/Fabric-FAQ.html#endorsement

QUESTION 19 When your developing with Fabric Composer which of the following is true?

A. Decrease the time of development
B. Simplifies the development of applications
C. Simplifies the code integration of applications
D. Increases the time of development

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Composer is an open-source application development framework which simplifies the creation of Hyperledger Fabric blockchain applications, thus reducing the time and complexity of development. The tool aims at helping users to create blockchain applications based on Hyperledger Fabric without needing to know the low-level (Go Programming) details involved in blockchain networks.

QUESTION 20
Chaincode Services uses Docker to host (deploy) the chaincode without relying on any virtual machine or computer language.

What would be the main reason or best reason that Hyperledger chose containers over virtual machines?

A. Docker provides a secured, lightweight method to sandbox chaincode execution that is “locked down”.
B. Docker provides a secured, lightweight method to sandbox chaincode execution that is “locked down” but additional programming languages cannot be enabledC. Docker provides a secured, lightweight method to sandbox chaincode execution that is not “locked down”
D. Docker is fully compatible with Hyperledger and Linux with an upgrade subscription.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Docker provides a secured, lightweight method to sandbox chaincode execution that is "locked down" Chaincode Services uses Docker to host (deploy) the chaincode without relying on any virtual machine or computer language. Docker provides a secured, lightweight method to sandbox chaincode execution. The environment is a "locked down" and secured container, along with a set of signed base images containing secure OS and chaincode language, runtime and SDK images for Golang Additional programming languages can be enabled

QUESTION 21
What type of ledger refers to a distributed ledger that doesn’t require a native currency to operate?

A. Tokenless B.
Public
C. Enterprise
D. Private

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A tokenless ledger refers to a distributed ledger that doesn’t require a native currency to operate. Generally, in a private blockchain tokens are not needed due to resources controlled by one party.

QUESTION 22 What is the application that is used by Hyperledger Fabric to communicate with the network?

A. SDK
B. SOAP PIC. Golang
D. RPC API
E. Node.js

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Fabric includes the REST and JSON RPC APIs, events, and an SDK for applications to communicate with the network.

QUESTION 23
Which of the following statements would be the best answer when it comes to channels and the use of ordering services in Hyperledger Fabric?

A. Channels ensure privacy in a blockchain network and ordering services may support many channels not just one channel.
B. Channels ensure privacy in a blockchain network and ordering services may not support more than one channel.
C. Channels do not ensure privacy in a blockchain and ordering services may not support more than one channel.
D. Channels do not ensure privacy in a blockchain and ordering services may support many channels not just one channel.
E. Channels do not ensure privacy in a blockchain network and ordering services may support many channels not just one channel.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Channels ensure privacy in a blockchain network Ordering services may support many channels no just one channel.

QUESTION 24
Which of the following would NOT be true about what a smart contract(Chaincode) gives your organization?

A. Autonomy
B. Savings
C. Trust
D. Legal Assurance

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
While smart contracts (Chaincode) can be written to complement or substitute for legal contracts, their legal enforceability is not yet agreed upon by all state governments

QUESTION 25 What type of peer
executes chaincode?

A. Anchor peer
B. Endorsing Peer
C. Chaincode is executed by the client
D. Ordered Peer
E. Chaincode is not executed by a peer.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Endorsing Peer can be marked as Endorser peer (i.e. Endorsing peer). Upon receiving the “transaction invocation request” from the Client application the Endorser peer Validates the transaction. Check certificate details and roles of the requester. Executes the Chaincode (Smart Contract) and simulates the outcome of the transaction. But it does not update the ledger. At the end of the above two tasks the Endorser may approve to disapprove the transaction. As only the Endorser node executes the Chaincode (Smart Contract) so there is no necessity to install Chaincode in each and every node of the network which increases the scalability of the network.

QUESTION 26 What type of certificates act as secure identifiers, digital passports which contain information about the owner in Hyperledger Fabric certificate
management?

A. RSA
B. PEM
C. PKI
D. X509

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

X509 certificates are used in Hyperledger Fabric. An X.509 certificate is any certificate under the X.509 specification standard for public key infrastructure and Privilege Management Infrastructure (PMI). The X.509 provides standardized formats for: Attribute certificates Public key certificates Certificate revocation lists Certification validation algorithms

QUESTION 27
Consensus on the Blockchain defines_____

A. The distribution of each data block
B. Agreement of a valid transaction by all the network nodes
C. Security between two blocks of data
D. Basic security of the blockchain

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Consensus is when the distributed ledger has been updated and all nodes maintain their own identical copy of the ledger which essentially is an agreement. This is also known as the “World State” in some blockchains. This architecture allows for a new capacity as a system of recordkeeping that goes beyond being a simple database.

QUESTION 28 Which of the following is the BEST definition of
Decentralization?

A. Peer-to-Peer data sharing, hosting hardware owned by many not few, fault tolerant, secure, lower performance
B. Distributed data sharing, hosting hardware owned by many not few, fault tolerant, secure, lower performance
C. Peer-to-Peer data sharing, hosting hardware owned by a few not many, fault tolerant, secure, lower performance

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Peer-to-Peer essentially uses data sharing, hosting hardware owned by many not few, fault tolerant, secure, lower performance. It’s common way to share files—a good example was Napster. Peer-to-peer (P2P) file sharing is the distribution of digital media such as software, videos, music, and images through an informal network in order to upload and download files. Typically, P2P software enables users to select which files to share. These files are indexed on a central server, making them available for other users to find and download.

QUESTION 29
Which of the following is the best answer when reviewing a "Code Invoking Transaction" in Hyperledger Fabric?

A. Code invoking transaction is an SOAP API call to a chaincode function and is similar to how a URL pattern invokes a servlet in J2EE.
B. Code invoking transaction is an REST API call to a chaincode function and is similar to how a URL pattern invokes a servlet in Node.js
C. Code invoking transaction is an API call to a chaincode function and is similar to how a URL pattern invokes a servlet in Node.jsD. Code invoking transaction is an REST API call to a chaincode function and is similar to how a URL pattern invokes a servlet in J2EE.
E. Code invoking transaction is an API call to a chaincode function and is similar to how a URL pattern invokes a servlet in HTTPS
F. Code invoking transaction is an RPC API call to a chaincode function and is similar to how a URL pattern invokes a servlet in HTTPS.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Code invoking transaction is an REST API call to a chaincode function and is similar to how a URL pattern invokes a servlet in J2EE. ServletServlet can be used to create a default mapping for servlets. For example, to create a default mapping to map all servlets to /myservlet/*, so the servlets can be called using http://host:port/web-app-name/myservlet/com/foo/FooServlet, add the following to your web.xml file. (The web.xml file is located in the WEB-INF directory of your Web application.) ServletServlet weblogic.servlet.ServletServlet ServletServlet /myservlet/*

QUESTION 30 You’re currently investigating Hyperledger and would like to confirm that there is a set of collaboration tools for building blockchain business networks that accelerate the development of smart contracts and blockchain applications.

What is the solution that meets the requirement?

A. Hyperledger Explorer
B. Hyperledger Composer
C. Hyperledger Quilt
D. Hyperledger Cello

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Composer (contributed by IBM and Oxchains) is a set of collaboration tools for building blockchain business networks that accelerate the development of smart contracts and blockchain applications, as well as their deployment across a distributed ledger.

QUESTION 31 In Hyperledger Fabric, there are three types of peer nodes depending upon the assigned roles.

What are three types? (Choose three.)

A. Committing Peer
B. Endorsing Peer
C. Peer
D. Client peer
E. MSP Peer
F. Channel Peer
G. Ordering Peer

Correct Answer: BCG
Section: (none)
Explanation

Explanation/Reference:
Explanation:
So not all peer nodes are same. There are different types of peer nodes with different roles in the network: Endorser peer Anchor peer Orderer peer Endorser peer Peers can be marked as Endorser peer (Endorsing peer). Upon receiving the “transaction invocation request” from the Client application the Endorser peer Validates the transaction. Check certificate details and roles of the requester. Executes the Chaincode (Smart Contract) and simulates the outcome of the transaction. But it does not update the ledger. At the end of the above two tasks the Endorser may approve to disapprove the transaction. As only the Endorser node executes the Chaincode (Smart Contract) so there is no necessity to install Chaincode in each and every node of the network which increases the scalibility of the network. Anchor peer Anchor peer or cluster of Anchor peers is configured at the time of Channel configuration. Just to remind you, in Hyperledger Fabric you can configure secret channels among the peers and transactions among the peers of that channel are visible only to them. Anchor peer receives updates and broadcasts the updates to the other peers in the organization. Anchor peers are discoverable. So any peer marked as Anchor peer can be discovered by the Orderer peer or any other peer. Orderer peer Orderer peer is considered as the central communication channel for the Hyperledger Fabric network. Orderer peer/node is responsible for consistent Ledger state accross the network. Orderer peer creates the block and delivers that to all the peers. Orderer is built on top of a message oriented architecture. There are two options are currently available to implement Orderer peer: Solo: Suitable for development. Single point failure. Solo should not be used for the production ready network. Kafka: Production ready Hyperledger Fabric network uses Kafka as the Orderer implementation. Kafka is a messaging software that has high throughput fault tolerant feature.

QUESTION 32 What certificate is granted an "allocation" of transaction certificates to each user?

A. rootcert
B. ecerts
C. tcerts
D. PKI
E. RSA

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Each enrolled user is granted an allocation of transaction certificates (tCerts).

Reference: https://console.bluemix.net/docs/services/blockchain/reference/v10_fabric.html#hyperledger-fabric

QUESTION 33
Chaincode with Hyperledger Fabric can be written in what development languages? Select All that apply.

A. Node.js
B. Go
C. Java

Correct Answer: ABC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/chaincode.html

QUESTION 34 The advantages of using Hyperledger Fabric include which of the following?

A. Having a modular component structure
B. Having a native token
C. Having a POW mining algorithm
D. Ability to use your programs from SQL

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Fabric has a modular component structure and an extensible plug and play framework

QUESTION 35
In regards to Fabric blockchain blocks. The structure of a "block header" consists of three sections when it is written. (Select three.)

A. Block Data
B. Block Number
C. Current Block Hash
D. Previous Block Hash
E. Block Metadata
F. Signature

Correct Answer: BCD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Let’s have a closer look at the structure of a block. It consists of three sections Block Header This section comprises three fields, written when a block is created. Block number: An integer starting at 0 (the genesis block), and increased by 1 for every new block appended to the blockchain. Current Block Hash: The hash of all the transactions contained in the current block. Previous Block Hash: A copy of the hash from the previous block in the blockchain.

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/ledger/ledger.html

QUESTION 36 Hyperledger blockchain frameworks reach consensus by performing two separate activities.

What are the two activities? (Select two.)

A. Updating Transactions
B. Validating Transactions
C. Ordering Transactions
D. Writing Transactions
E. Packing Transactions

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger business blockchain frameworks reach consensus by performing two separate activities: 1. Ordering of transactions 2. Validating transactions by logically separating these activities, we ensure that any Hyperledger framework can work with any Hyperledger consensus module.

Reference: https://www.hyperledger.org/wp-content/uploads/2017/08/Hyperledger_Arch_WG_Paper_1_Consensus.pdf

QUESTION 37 All of the following are key terms in Cryptography EXCEPT?

A. Function
B. Root Hash
C. Secret
D. Code
E. Cipher

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Cryptography is used in Blockchain to address the issues and concerns of privacy. Cryptography is the study of how to send information back and forth securely in the presence of adversaries. A cryptographic function is a function for encoding or encrypting data to protect the contents from others. The following components are the basis of a cryptographic function: The Secret: The data which we are trying to protect The Key: A piece of data used for encrypting and decrypting the secret The Function: The process or function used to encrypt the secret The Cipher: The encrypted secret data, output of the function The Secret and the Key are passed into the Function to create a Cipher.

QUESTION 38 The Hyperledger Project Framework of blockchains is meant for specific use cases for enterprise.

Which blockchain includes a novel consensus algorithm, Proof of Elapsed Time (PoET)?

A. Hyperledger Iroha
B. Hyperledger Fabric
C. Hyperledger Indy
D. Hyperledger Sawtooth

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Sawtooth is a modular platform for building, deploying, and running distributed ledgers. Hyperledger Sawtooth includes a novel consensus algorithm, Proof of Elapsed Time (PoET), which targets large distributed validator populations with minimal resource consumption.

QUESTION 39
Which tool would you select to that would allow users to measure performance of a specific implementation with predefined use cases?

A. Hyperledger Caliper
B. Hyperledger Explorer
C. Hyperledger Cello
D. Hyperledger Quilt

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Caliper, a blockchain benchmark tool that allows users to measure performance of a specific implementation with predefined use cases, is in incubation status and was contributed by developers from numerous organizations.

QUESTION 40 What component on the blockchain maintains the "world state"?

A. Consensus Algorithm
B. Reputation Manager
C. Consensus Manager
D. Distributed Ledger

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Distributed Ledger manages the world state and the transaction log in the blockchain. The world state is defined as the state of all transactions on the Blockchain, where all nodes agree that all blocks on the Blockchain are at the same state. It implements three key attributes. It efficiently calculates the cryptographic hash of the entire dataset of each block. It efficiently transmits a minimal “delta” changes to the dataset, when a peer is out of sync and needs to “catch up”. It minimizes the amount of stored data required for each peer to operate.

QUESTION 41 Hyperledger Fabric Consensus is planned out into 3 phases. Which one is NOT a phase?

A. Ordering
B. Endorsement
C. Voting
D. Validation

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 42 Hyperledger Fabric essentially implements a private validator network protocol.

Which of the following statements are true?

A. None of the entities in a network must register with membership services to obtain with access and transaction authority on the network.
B. Selected entities in a network must register with membership services to obtain an identity with access and transaction authority on the network.
C. All the entities in a network must register with membership services to obtain an identity with access and transaction authority in the network.
D. Selected entities in a network must register with Reputation Manager to obtain an identity with access and transaction authority on the network.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger is a private validator network protocol. All the entities in a network must register with membership services to obtain an identity with access and transaction authority on the network. Validators determine the level of permissions required to transact. The network setup also defines the network as permissive, allowing the ease of access. It supports for rapid and high adoption for a more controlled and restrictive environment.

QUESTION 43 Which of the following
provides Immutability?

A. Assurance that a transaction cannot be altered
B. Network configuration cannot be changed
C. Guarantee that participants will never put bad information on the Blockchain
D. Network nodes will never fail

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.ibm.com/blockchain/what-is-blockchain

QUESTION 44
Blockchain services in Hyperledger Fabric manages the distributed ledger through a peer to peer protocol that is built on _____?

A. HTTP/2
B. TLS and SSL
C. TLS
D. HTTP/1
E. SSL

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Blockchain services manages the distributed ledger through a peer to peer protocol that is built on HTTP/2. The optimized data structure provides efficient schemes for maintaining the world state (the state of all transactions on the Blockchain) replicated at many participants.

QUESTION 45 Which of the following blockchain key components state how the transactions will
be confirmed?

A. Consensus algorithm
B. Shared Distributed Ledger
C. Encryption
D. Validity Rules

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Validity rules (validation) state how the user and the transactions will be validated. This is predetermined by the consensus algorithm.

QUESTION 46
What must implement every chaincode?
A. Golang
B. Chaincode Interface
C. Java
D. Linux APIs

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Chaincode Interface is required and supports Go, Node.js or Java.

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/chaincode4ade.html#chaincode-api

QUESTION 47
Query is called whenever you query your chaincode's state. Queries do not result in blocks being added to the chain, and you cannot use certain functions.

Which function can you not use inside a Query?

A. Error
B. Getstate
C. Putstate
D. Read

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://github.com/IBM-Blockchain-Archive/learn-chaincode

QUESTION 48
_____is called to update or query the ledger in a proposal transaction. This is called by the chaincode.

A. Initialize
B. Init
C. Update
D. Invoke

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Invoke is called to update or query the ledger in a proposal transaction. Init is called during Instantiate transaction after the chaincode container has been established for the first time, allowing the chaincode to initialize its internal data. Invoke is called to update or query the ledger in a proposal transaction. Updated state variables are not committed to the ledger until the transaction is committed.

Reference: https://godoc.org/github.com/hyperledger/fabric/core/chaincode/shim#Chaincode

QUESTION 49 What means "Forking" the Hyperledger Fabric Github repository? (Select two.)

A. Fork will fork the entire repository including all the branches.
B. Forking is not allowed in Github.

C. Moving this repository to your GitHub account and removing contents from previous repository.
D. Fork will fork the specific repository without all the branches.
E. Creating a copy of this repository under your GitHub account.

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Forking" the repository means creating a copy of this repository under your GitHub account. Note that the fork will fork the entire repository including all the branches.

QUESTION 50 The chaincode's interface implements which of the following functions?

A. Invoke and Close
B. Invoke and Revoke
C. Open and Shut
D. Open and Close
E. Invoke and Init

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger supports the following two types of transactions. Code deploying transaction: A code deploying transaction submits, updates, or terminates a chaincode. Code invoking transaction: A code invoking transaction is an API call to a chaincode function.

QUESTION 51
When deploying a database option there are some important things to consider from a deployment perspective. CouchDB and LevelDB can be deployed with Fabric.

Which of the following is a true statement in regards to ledger deployment?

A. A CouchDB database is closely co-located with a network node and runs in a separate operating system process
B. A LevelDB database is closely co-located with a network node and runs in a separate operating system process
C. A CouchDB database is closely co-located with a network node and it is embedded within the same operating system processD. A LevelDB database is closely co-located with a network node and it is embedded within the same operating system process

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A CouchDB database is closely co-located with a network node and it is embedded within the same operating system process.

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/ledger/ledger.html

QUESTION 52 Every chaincode has an _____ policy which specifies the set of peers on a channel that must execute chaincode and endorse the execution results in order for the transaction to be considered valid.

A. Endorsement
B. Transaction
C. Validation
D. Chaincode

Correct Answer: A
Section: (none)
Explanation
Explanation/Reference:
Explanation:
Chaincode has an endorsement policy which specifies the set of peers on a channel that must execute chaincode and endorse the execution results in order for the transaction to be considered valid.

QUESTION 53 Hyperledger can best be described as which of the following?

A. A Newer Version of Proof of Stake
B. An IBM owned solution that is a single blockchain
C. A newer version of Proof of Work
D. An effort to advance cross-industry blockchain technologies

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
An effort to advance cross-industry blockchain technologies. Hyperledger is an open source collaborative effort created to advance cross-industry blockchain technologies. It is a global collaboration, hosted by The Linux Foundation, including leaders in finance, banking, IoT, supply chain, manufacturing and technology.

QUESTION 54
In Hyperledger not all Nodes are created equal. What are the three distinct types of nodes? (Select three.)

A. MSP Nodes
B. Ordered Nodes
C. Channel Node
D. Client Nodes
E. Peer Nodes
F. Endorser Node

Correct Answer: BDE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Client Node: That initiates the transaction 2. Peer Nodes: Commits Transaction & keeps the data in sync across the ledger 3. Ordered: They are the communication backbones and responsible for the distribution of the transactions

QUESTION 55 The Hyperledger Project consists of the following EXCEPT?

A. Infrastructure
B. Tools
C. Framework
D. Management

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Management is not correct. The Hyperledger Project consists of the following Infrastructure - Ecosystems that accelerate open development and commercial adoption Frameworks – A portfolio of differentiated approaches to business blockchain frameworks developed by a growing community of communities Tools - Typically built for one framework, and through common license and community of communities approach, ported to other frameworks hyperledger.org.

QUESTION 56
What is the best description of how Kafka is utilized for consensus approach in Hyperledger Fabric?

A. Kafka does not support crash tolerance but it does not offer protection against rogue nodes in the network.
B. Provides Byzantine fault tolerance. Finality happens in a matter of seconds. Scale to petabytes of data, distributed across many clusters.
C. Provides Byzantine fault tolerance. Finality happens in a matter of seconds.
D. Permissioned voting based Leader does ordering. Only in-sync replicas can be voted as leader.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Kafka essentially is a distributed, horizontally-scalable, fault-tolerant, commit log. The other answers are in correct.

Reference: https://www.hyperledger.org/wp-content/uploads/2017/08/Hyperledger_Arch_WG_Paper_1_Consensus.pdf

QUESTION 57 What is provided by the Hyperledger Fabric to facilitate network communications?

A. SDK
B. API
C. Golang
D. Java
E. Middleware

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Fabric provides a Node.js and a Java SDK to facilitate network communications functionality.

QUESTION 58
Voting-based algorithms are advantageous in that they provide a benefit but a tradeoff. (Select two.)

A. Trade off between scalability and security.
B. Better security due to node control.
C. Low-latency finality.
D. Trade off between scalability and performance.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger makes use of the permissioned voting-based consensus from the pool of other consensus named the lottery-based consensus. (Kafka in Hyperledger Fabric Ordering Service) Voting-based algorithms are advantageous in that they provide low-latency finality. More Nodes = More Time to reach Consensus. Trade off between Scalability and Performance

QUESTION 59
Hyperledger Fabric is a blockchain implementation that is designed for deploying a modular and extensible architecture.

Which of the following is NOT true about the architecture of Hyperledger?

A. It is modular and extensible
B. It allows for interoperability
C. It has a native cryptocurrency token
D. It has a rich API development capacity

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
It has a modular subsystem design so that different implementations can be plugged in and implemented over time. Modular and extensible means modularity in all components of all frameworks, including: Consensus layer
Smart contract layer
Communication Layer
Data Store
Identity services (root of trust, to identify the participants).

QUESTION 60 Hyperledger Fabric Ledger has two parts.
What are they?

A. Stateless Data and Snapshots
B. State Data and Transaction Logs
C. State Data and Membership Logs
D. Stateful Data and Membership Logs
E. State data and Snapshots

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation
Representation of current state of the assets. Asset state data can be changed upon changes to the state of the data.
• Transaction Logs: Record of all the transactions (in the order they are received) which modified the state data, and once the data is written it is immutable and cannot be changed.

QUESTION 61 Hyperledger Fabric Consensus is planned out into 3
phases. (Select three.)

A. Validation
B. Scheduling
C. Ordering
D. Endorsement
E. Processing
F. Batching

Correct Answer: DCA
Section: (none)
Explanation

Explanation/Reference:

QUESTION 62
The Hyperledger Project has a modular umbrella schema to its organization which includes three parts of the organizational schema. As part of the organizational schema, it includes an “Infrastructure” Module that is structured with four layers.

What layer below is NOT part of the structure?

A. Architecture
B. Organizational
C. Legal
D. Technical

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Infrastructure Module includes the following four modules: Technical, Legal, Marketing, and Organizational.

QUESTION 63
When the distributed ledger has been updated and all nodes maintain their own identical copy of the ledger, what were the nodes reached?

A. Perfection
B. Consensus
C. Replication
D. Agreement

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Consensus is when the distributed ledger has been updated and all nodes maintain their own identical copy of the ledger. This is also known as the “World State” in some blockchains. This architecture allows for a new capacity as a system of recordkeeping that goes beyond being a simple database.

QUESTION 64
_____ endorsement allows the default chaincode-level endorsement policies to be overridden by a different policy for the specified keys.

What type of endorsement is this?

A. Policy Driven
B. Key-Value
C. Stateless
D. State based

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
State Based y default, endorsement policies are specified for a channel’s chaincode at instantiation or upgrade time (that is, one endorsement policy covers all of the state associated with a chaincode). However, there are cases where it may be necessary for a particular state (a particular key-value pair, in other words) to have a different endorsement policy. This state-based endorsement allows the default chaincode-level endorsement policies to be overridden by a different policy for the specified keys.

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/endorsement-policies.html

QUESTION 65 Ordering service nodes also provide the following
services EXCEPT?

A. Authentication of clients
B. Maintenance of a system chain that defines ordering service configurations, root certs and MSP IDs for authenticated organizations and a grouping of profiles containing the various consortia within the network.
C. Checks the Certificate details and others to validate the transaction.

D. Filtering and validation for configuration transactions that reconfigure or create a channel.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/arch-deep-dive.html

QUESTION 66 How are "assets" in Hyperledger Fabric represented? (Select two.)

A. Binary
B. Go
C. JSON
D. Node.JS
E. Yaml

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Assets in Hyperledger Fabric are represented in JSON or Binary. Assets are represented in Hyperledger Fabric as a collection of key-value pairs, with state changes recorded as transactions on a Channel ledger. Assets can be represented in binary and/or JSON form. Dont get confused of how Fabric is developed and how assets in chaincode are deployed

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/fabric_model.html

QUESTION 67 Hyperledger fabric business network is divided into which of the following categories?

A. Composer, Fabric and Chaincode
B. Sawtooth, Fabric and Indy
C. Blockchain, Registration, Identity
D. Blockchain, Chaincode and Membership

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 68
Which part of the Hyperledger Project has the marketing responsibility for commercial adoption of the Hyperledger Solutions?

A. Tools
B. Management
C. Infrastructure
D. Framework

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 69
Please review the chaincode below and select what "import" is specifying.

chaincode_example02.go | README | new 3 | Hills - Scenarios - Stories.txt | new 1 | new 2 | new 4 | new 5 | new

```
16
17  package main
18
19  //WARNING - this chaincode's ID is hard-coded in chaincode_example04 to illustrate one way of
20  //calling chaincode from a chaincode. If this example is modified, chaincode_example04.go has
21  //to be modified as well with the new ID of chaincode_example02.
22  //chaincode_example05 show's how chaincode ID can be passed in as a parameter instead of
23  //hard-coding.
24
25  import (
26      "errors"
27      "fmt"
28      "strconv"
29      "github.com/hyperledger/fabric/core/chaincode/shim"
30  )
31
```

A. Menu Choices
B. Installation requirements
C. Dependencies
D. Logging requests

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.ibm.com/developerworks/community/blogs/8d277a63-4204-4fd3-8cb8-b7cb222cd522/entry/Write_deploy_invoke_and_query_Chaincode_on_Blockchain_Hyperlegder_network?lang=en

QUESTION 70 The fastest way to test your chaincode is to use the REST interface on your peers. There are several REST endpoints you can test and interact with chaincode. (Select two.)

A. /registrar
B. /register
C. /chaincode
D. /blockchain
E. /BaaS

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
/chaincode is the endpoint used for deploying, invoking, and querying chaincode. Which operation you perform is controlled by the body of the request that you send. /registrar allows you to enroll users. Reference:

https://github.com/IBM-Blockchain-Archive/learn-chaincode

QUESTION 71
There are currently three supported ordering services in Hyperledger Fabric and one service is used by developers experimenting with Hyperledger Fabric networks.

What service is this?

A. PoET
B. Kafks
C. SOLO
D. SBFT
E. BFT

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SOLO is the Hyperledger Fabric ordering mechanism most typically used by developers experimenting with Hyperledger Fabric networks. SOLO involves a single ordering node and Note Development Only.

QUESTION 72 Hyperledger Explorer is what type of web application? (Select two.)

A. A Nodejs based web app which runs on Node/Express
B. A JS based web app which runs on Node/ExpressJS
C. Uses PostGres SQL as the backend database
D. Uses MySQL as the backend database

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 73
Which Hyperledger tool provides an open source browser for viewing activity on the underlying blockchain network?

A. Caliper
B. Quilt
C. Cello
D. Explorer

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Explorer can view, invoke, deploy or query blocks, transactions and associated data, network information, chain codes and transaction families, as well as other relevant information stored in the ledger. Powerful, easy-to-use, highly maintainable, open source browser for viewing activity on the underlying blockchain network.

QUESTION 74 In Hyperledger Fabric there is three types of chaincode. (Select three.)

A. Private
B. Hybrid
C. Access Controlled
D. Consortium
E. Public
F. Compliant

Correct Answer: AEC
Section: (none)
Explanation
Explanation/Reference:
Reference: https://fabric-docs-test.readthedocs.io/en/latest/glossary/#chaincode

QUESTION 75 When reviewing chaincode you see a function called "ChaincodeStubInterface" in the program.

What does this function do?

A. It is used to access the ledger.
B. It is used to access the chaincode interface.
C. It is used to access the ledger and modify the ledger.
D. It is used to stop the chaincode interface.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: http://tutorialsdiary.com/hyperledger-fabric-tutorials-chaincode-interface-chaincodestubinterface/

QUESTION 76 There are two popular approaches to defining assets in most blockchain solutions. (Select two.)

A. Stateless UTXO model, where account balances are encoded into past transaction records.
B. Account model, where account balances are kept in state storage space in memory registers.
C. Stateful UTXO model, where account balances are encoded into past transaction records.
D. Account model, where account balances are kept in stateless storage space on the ledger.
E. Stateless UTXO model, where account balances are encoded into current transaction records.
F. Account model, where account balances are kept in state storage space on the ledger.

Correct Answer: AF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Users can use chaincode (for business rules) and membership service (for digital tokens) to design assets, as well as the logic that manages them. There are two popular approaches to defining assets in most blockchain solutions: the stateless UTXO model, where account balances are encoded into past transaction records; and the account model, where account balances are kept in state storage space on the ledger. Each approach carries its own benefits and drawbacks. This blockchain fabric does not advocate either one over the other. Instead, one of our first requirements was to ensure that both approaches can be easily implemented with tools available in the fabric.

QUESTION 77 The use of cryptographic hashing with blockchain provides for which of the following?

A. Providing for flexibility in security design
B. Providing for ease of analytical insight
C. Ensuring data blocks are mutable
D. Ensuring data blocks are immutable

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 78
What function in chaincode will be used to store a state on the blockchain ledger?
A. ChaincodeStubInterface.getFunctionAndParameters
B. ChaincodelLedgerInterface.PlaceState
C. ChaincodeStubInterface.PlaceState
D. ChaincodeStubInterface.PutState
E. ChaincodeLedgerInterfaceStoreState

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.4/chaincode4ade.html

QUESTION 79 In Hyperledger Fabric each channel will manage its own _____ and _____?
Select best answer.

A. Nodes, Peers, Chaincode
B. Chaincode, SQL
C. Ledgers, Logging
D. Ledgers, Chaincode
E. Ledgers, Chaincode and APIS

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Chaincode may be deployed on multiple channels, each instance is isolated within its channel. Each channel maintains their own chaincode and ledger.

QUESTION 80 There are generally two ways to develop business contracts in Hyperledger. (Select two.)

A. Code individual contracts into standalone instances of chaincode.
B. Use chaincode to create decentralized applications that manage the life cycle of one or multiple types of business contracts, and let end users instantiate instances of contracts within these applications.
C. Code multiple contracts into distributed instances of chaincode.
D. Code individual contracts into distributed instances of chaincode.
E. Use chaincode to create centralized applications that manage the life cycle of one or multiple types of business contracts, and let end users instantiate instances of contacts within these applications.

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Explanation:
There are generally two ways to develop business contracts: the first way is to code individual contracts into standalone instances of chaincode; the second way, and probably the more efficient way, is to use chaincode to create decentralized applications that manage the life cycle of one or multiple types of business contracts, and let end users instantiate instances of contracts within these applications Reference: https://fabric-docs-test.readthedocs.io/en/latest/FAQ/chaincode_FAQ/

QUESTION 81 Chaincode interface must be implemented by ever chaincode program.

A. TRUE
B. FALSE

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.4/chaincode4ade.html

QUESTION 82 Which of the following would not be a good use case for Hyperledger Fabric?

A. Cryptocurrency Exchange
B. Compliance Ledger
C. Business Contracts
D. Asset Exchange

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Fabric is an enterprise permissioned blockchain. It does not have a cryptocurrency nor token. It could be a use case to develop chaincode to create an off chain channel to a cryptocurrency exchange but this would not be efficient.

QUESTION 83
Hyperledger is a membership based distributed ledger platform. What determine the level of permissions required to transact for members?

A. Authentication Services
B. Validator Services
C. Identity Management
D. Audit Services

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger is a private validator network protocol. All the entities in a network must register with membership services to obtain an identity with access and transaction authority on the network. Validators determine the level of permissions required to transact. The network setup also defines the network as permissive, allowing the ease of access. It supports for rapid and high adoption for a more controlled and restrictive environment.

QUESTION 84 Hyperledger supports two types of transactions. What are the two types? (Select two.)

A. Code Provisioning Transaction
B. Code Provisioning Transaction
C. Code Deploying Transaction
D. Code Invoking Transaction
E. Code Declaring Transaction

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Code deploying transaction Code deploying transaction submits, updates or terminates a chaincode. The validating nodes protects the authenticity and integrity of the code and its executing environment. Code invoking transaction Code invoking transaction is an API call to a chaincode function. It is similar to how a URI invokes a servlet in JEE. The displayed function is called upon the instantiation of the chaincode. Each chaincode maintains its own state and a function call is made to trigger chaincode state changes.

QUESTION 85
What is the best definition of chaincode with Hyperledger?

A. Chaincode is a decentralized transactional program, running one the validating nodes.
B. Chaincode is centralized transactional program, running on the validating nodes.
C. Chaincode is centralized transactional program, running on the peer nodes.
D. Chaincode is a decentralized transactional program, running on the peer nodes.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 86
Consensus algorithms are used because _____

A. They can include specific rules or conditions to be met
B. They increase the network security from hacking
C. They prevent blockchain node failure
D. They increase network speed

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://medium.com/coinbundle/consensus-algorithms-dfa4f355259d

QUESTION 87 There are currently three supported ordering services in Hyperledger Fabric. (Select three.)

A. BFT
B. PoET
C. SBFT
D. Kafka
E. SOLO

Correct Answer: CDE
Section: (none)
Explanation

Explanation/Reference:
Reference: https://medium.com/swlh/hyperledger-chapter-6-hyperledger-fabric-components-technical-context-767985f605dd

QUESTION 88 Which of the following syntaxes will compile the chaincode?

A. go int
B. go build
C. go create
D. go compile

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.4/chaincode4ade.html

QUESTION 89 What is the initial setup of a network which policies, system chaincodes, and cryptographic materials (certs) are disseminated amongst participants are defined to establish trust?

A. Chaining
B. Instantiaton
C. Bootstrapping
D. Subnetting

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The application is bootstrapped knowing about a group of peers which are trusted by the application developer/administrator to provide authentic responses to discovery queries. There is the bootstrap of a peer network, during which policies, system chaincodes, and cryptographic materials (certs) are disseminated amongst participants, and the bootstrap of an ordering network. The bootstrap of the ordering network must precede the bootstrap of the peer network, as a peer network is contingent upon the presence of an ordering service. A network need only be “bootstrapped” once.

QUESTION 90 What type of peer endorses and executes a transaction?

A. Endorsement Peer
B. Peered Peer
C. Executing Peer
D. Endorsing Peer
E. Peer Node

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
An endorser executes and endorses transactions. The endorsing peers take the role of endorsing transactions before they are ordered and committed as per the policy defined in Chaincode.

QUESTION 91
When designing a client application it is important to note that queries are defined in a query file (.qry). Where is this .qry file stored?

A. Parent directory of the business network definition
B. /tmp directory of the package.json file
C. Child directory of the package.json file
D. Child directory of the business network definition
E. Parent directory of the package.json file

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 92
You are starting to understand the needed package dependencies for chaincode. What are the two required packages? (Select two.)

A. Init
B. Peer Protobuf
C. Shim
D. Start

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 93
What services provides the capability to provide authorized entities the means to link transactions of individual users or groups of users according to the affiliation or roles?

A. Authentication Services
B. Registration Services
C. Identity Management
D. Auditability Services

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 94
Smart contracts are created by computer programmers through the help of smart contract development tools and are entirely digital. These programs are usually written using programming code languages.

Which of the following languages would not be ideal for use in smart contracts?

A. Python
B. Assembler
C. C++
D. Go
E. Java

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Assembler languages are not web or html friendly nor high level.

QUESTION 95
The Membership Services Provider provides identity, privacy, and confidentiality to the network and also by default issues two types of certificates.

What are the certificate types? (Select two.)

A. Does not issue certificates by default
B. pcert
C. tcert
D. scert

E. ecert

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Membership services provide identity, privacy, and confidentiality to the network. Abstraction of an architecture for membership operations.

QUESTION 96
Hyperledger Fabric Composer allows for an easy front end application development experience without having to know the network internal application structure.

How is this done in Hyperledger Fabric?

A. LoopBack connector for business networks exposes a running network as a RPC API which can easily be consumed by client applications and integrate non-blockchain applications.
B. LoopBack connector for business networks exposes a running network as a SOAP API which can easily be consumed by client applications and integrate non-blockchain applications.
C. LoopBack connector for business networks exposes a running network as a SOAP or RESTFUL API which can easily be consumed by client applications and integrate non-blockchain applications.
D. LoopBack connector for business networks exposes a running network as a REST API which can easily be consumed by client applications and integrate non-blockchain applications.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
REST API support and integration capabilities: A LoopBack connector for business networks has been developed that exposes a running network as a REST API which can easily be consumed by client applications and integrate nonblockchain applications. This allows for easier front end application development without having to know the network internal application structure.

QUESTION 97
When creating Chaincode for your application what are two tasks you need to perform before running chaincode?

A. Make sure that a directory is created for your chaincode application as a child
B. Fork the hyperledger Github.
C. JS programming language installed and correctly configured.
D. Go programming language installed and correctly configured.
E. Create a directory on every peer node.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Getting started- Writing chaincode you will want to make sure that you have the Go programming language installed and correctly configured. Make sure that a directory is created for your chaincode application as a child

QUESTION 98 What type of node commits transactions & keeps the data in sync
across the ledger?

A. Committed
B. Endorsed
C. Client
D. Peer

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Peer nodes commits Transaction & keeps the data in sync across the ledger. They are nodes that maintain the state and copy of a shared ledger. Peers are authenticated by certificates issued by MSP. In Hyperledger Fabric, there are three types of peer nodes depending upon the assigned roles.

QUESTION 99
By default, the discovery business network card is also used to handle all requests to the _____

A. REST API
B. Chaincode
C. SDK
D. Cloud Endpoint

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The REST server uses a business network card specified during startup to connect to and discover the assets, participants, and transactions within a deployed business network. This information visibility is required in order to generate the REST API. This business network card is known as the discovery business network card. By default, the discovery business network card is also used to handle all requests to the REST API.

QUESTION 100 What is a web-based tool allows developers to learn Hyperledger Composer, model out their business network (domain), test that network, and deploy that network to a live instance of a blockchain network?

A. Hyperledger Composer Runtime
B. Hyperledger Composer Playground
C. Hyperledger Explorer
D. Hyperledger Quilt

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This web-based tool allows developers to learn Hyperledger Composer, model out their business network (domain), test that network, and deploy that network to a live instance of a blockchain network. The playground keeps the development model in browser storage, allowing them to be easily uploaded or downloaded. The playground also allows for CRUD (create, read, update, delete) operations to be performed on asset transactions which are created and logged. Composer playground offers a repository of sample business networks that can provide a base for building your own business network.

QUESTION 101 What is the process of turning cipher-text back into plaintext called?

A. Packing
B. Encryption
C. Decryption
D. Hashing

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 102 Chaincode Services uses_____ to host (deploy) the chaincode.

What does Chaincode services in Hyperledger use?

A. Virtual Machines
B. Kubernetes
C. Deployment Manager
D. Yaml
E. Docker

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Chaincode Services uses Docker to host (deploy) the chaincode without relying on any virtual machine or computer language. Docker provides a secured, lightweight method to sandbox chaincode execution. The environment is a "locked down" and secured container, along with a set of signed base images containing secure OS and chaincode language, runtime and SDK images for Golang. Additional programming languages can be enabled, if required.

QUESTION 103
What function is used to call the shim.Start function below?

```
package main

import (
    "fmt"

    "github.com/hyperledger/fabric/core/chaincode/shim"
    "github.com/hyperledger/fabric/protos/peer"
)

// SimpleAsset implements a simple chaincode to manage an asset
type SimpleAsset struct {
}

// Init is called during chaincode instantiation to initialize any
// data. Note that chaincode upgrade also calls this function to reset
// or to migrate data.
func (t *SimpleAsset) Init(stub shim.ChaincodeStubInterface) peer.Response {
    // Get the args from the transaction proposal
    args := stub.GetStringArgs()
    if len(args) != 2 {
            return shim.Error("Incorrect arguments. Expecting a key and a value")
    }

    // Set up any variables or assets here by calling stub.PutState()

    // We store the key and the value on the ledger
    err := stub.PutState(args[0], []byte(args[1]))
    if err != nil {
            return shim.Error(fmt.Sprintf("Failed to create asset: %s", args[0]))
    }
    return shim.Success(nil)
}
```

A. import
B. init
C. main
D. type

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.4/chaincode4ade.html

QUESTION 104
Which Hyperledger Tool brings on demand as-a-service deployment model into the blockchain ecosystem in order to reduce the effort required to create, manage, and terminate blockchains?

A. Composer
B. Cello
C. Caliper
D. Quilt
E. Explorer

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Cello is a blockchain provision and operation system, which helps manage blockchain networks in an efficient way. Cello is a tool that could be used for example by vendors and VARs to provide a BaaS to their customer base.

QUESTION 105
The concept of a node is common in most blockchains. Which of the following about nodes is INCORRECT?

A. Nodes need a valid certificate to be able to communicate to the network
B. Nodes connect to other nodes and that is how a blockchain is formed
C. These three types of nodes. Client, peer and Ordered
D. Nodes use a type of client server protocol for keeping the distributed ledger in sync across the network

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Nodes use a Peer to Peer protocol not a Client Server. The concept of node is common in all blockchain technologies. The “Node” becomes the communication end point in blockchain technology. Nodes connect to other nodes and that is how a blockchain is formed. Nodes use a type of peer-to-peer protocol for keeping the distributed ledger in sync across the network.

QUESTION 106 Which Hyperledger Fabric ordering mechanism is recommended for production use?

A. BFT
B. Kafka
C. SBFT
D. SOLO

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Kafka is the Hyperledger Fabric ordering mechanism that is recommended for production use. This ordering mechanism utilizes Apache Kafka, an open source stream processing platform that provides a unified, high-throughput, low-latency platform for handling real-time data feeds.

QUESTION 107 The business network definitions are packaged into what file?

A. .cto
B. .acl
C. .bnd
D. .bna

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
.bna is also know as a "banana" file in the hyperledger world. Before a business network definition can be deployed it must be packaged into a Business Network Archive (.bna) file. The composer archive create command is used to create a business network archive file from a business network definition folder on disk.

QUESTION 108 What is a transaction request sent from a client or admin user to one or more peers in a network?

A. Chaincode
B. Proposal
C. Update
D. RPC

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Proposal is A transaction request sent from a client or admin user to one or more peers in a network; examples include deploy, invoke, query, or configuration request. https://fabrictestdocs.readthedocs.io/en/latest/glossary.html

QUESTION 109 Which of the following statements would be true regarding Hyperledger Composer Playground?

A. Composer Playground allows for CRUD (create, read, update, delete) operations to be performed on asset transactions which are logged but not created.
B. Composer Playground allows for CRUD (create, read, update, delete) operations to be performed on asset transactions which are stored in the database and logged.
C. Composer Playground allows for CRUD (create, read, update, delete) operations to be performed on asset transactions which are created but lot logger.
D. Composer Playground allows for CRUD (create, read, update, delete) operations to be performed on asset transactions which are created and logged.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This web-based tool allows developers to learn Hyperledger Composer, model out their business network (domain), test that network, and deploy that network to a live instance of a blockchain network. The playground keeps the development model in browser storage, allowing them to be easily uploaded or downloaded. The playground also allows for CRUD (create, read, update, delete) operations to be performed on asset transactions which are created and logged. Composer playground offers a repository of sample business networks that can provide a base for building your own business network.

QUESTION 110 In Hyperledger Composer resources are declared which three ways? (Choose three.)

A. Assets, orderers, transactions, and events
B. Concepts
C. Assets, participants, transactions, end events
D. Collections
E. Non Enumerated types
F. Enumerated types

Correct Answer: BCF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 111
What Hyperledger tool is a blockchain benchmark tool that allows users to measure performance of a specific implementation with predefined use cases?

A. Cello
B. Explorer
C. Caliper
D. Composer
E. Quilt

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hyperledger Caliper: A blockchain benchmark tool that allows users to measure performance of a specific implementation with predefined use cases Its in Alpha mode at time of writing. Contributed by developers from numerous organizations.

Reference: https://github.com/hyperledger/caliper

QUESTION 112 Which of the following is not a feature of a
Hyperledger Fabric ledger?

A. Read-only history queries – Query ledger history for a key, enabling data provenance scenarios
B. Read-only queries using a rich query language (if using CouchDB as state database)
C. Read-only queries using a rich query language (if using LevelDB as state database)
D. Query and update ledger using key-based lookups, range queries, and composite key queries.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Rich Query Language capability is available with CouchDB. What DB is used? The ledger system in Hyperledger fabric uses levelDB. By definition, LevelDB allows concurrent writers to safely insert data into the database by providing internal synchronization State database options include LevelDB and CouchDB. LevelDB is the default key-value state database embedded in the peer process. CouchDB is an optional alternative external state database. (Binary data)
https://hyperledger-fabric.readthedocs.io/en/release-1.3/fabric_model.html

QUESTION 113
Composer Modeling Language is an object-oriented modeling language that defines the domain model for a business network definition. Essentially this is saved as a .cto file.

Which of the following is NOT a characteristics of a .cto file?

A. It represents a set of resource definitions that includes assets, transactions, participants, ana events.
B. Values may not be assigned to any field variable.
C. The modeling language does not support multiple inheritance.
D. It is a single namespace in which all resource declarations are implicitly defined.
E. When using Hyperledger Composer modeling language structure words “asset” and “participant” are reserved.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Values can be assigned to any field variable A CTO file consists of:
● A single namespace, in which all resource declarations are implicitly.

● The overall “model” defines the representation of assets.
● A set of resource definitions that includes assets, transactions, participants, and events.
● Values may be assigned to any field variable.
● The option to import resources from other namespaces.
● When using composer modeling language, the words “asset” and “participant” are reserved.● Asset ownership instance is defined in a relationship field. (symbol: o) ● The modeling language does not support multiple inheritance.

QUESTION 114
In Hyperledger Fabric channels are used to ensure privacy and confidentiality. Which of the following is not correct about channels?

A. Peers are connected to the channel and can receive all the transactions that are broadcasted on that channel B.
Each channel maintains their own chaincode and ledger
C. Channels are membership based.
D. Consensus takes place within a channel by members of the channel and other channels.
E. Channels partition the network in order to allow transaction visibility for specific stakeholders only

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Peers are connected to the channel and can receive all the transactions that are broadcasted on that channel. Consensus takes place within a channel by members of the channel only. Channels are membership based.

Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.3/channels.html

QUESTION 115 The _____enables auditors to view transactions pertaining to a participant, providing that each auditor has been granted proper access authority, based on the role of the participants.

A. Audit Defense
B. Hyperledger Quilt
C. Hyperledger Burrow
D. Reputation Manager

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Reputation Manager is part of the MSP Membership services provide identity, privacy, and confidentiality to the network. Basic access to the network is determined through the role of the member, who may all have separate legal and/or independent entities. Depending on the network, different authentication schemes are used for assigning identity. For transacting, the participants must obtain identities. The Reputation Manager enables auditors to view transactions pertaining to a participant, providing that each auditor has been granted proper access authority, based on the role of the participants.

QUESTION 116
When the_____, _____ or _____function of a chaincode is called, the fabric passes the `stub *shim.ChaincodeStub` parameter. (Select three.)

A. Query
B. List
C. Invoke
D. Init
E. Write
F. Delete

Correct Answer: ACD
Section: (none)
Explanation
Explanation/Reference:

Explanation:
When the Init, Invoke or Query function of a chaincode is called, the fabric passes the stub *shim.ChaincodeStub parameter. This stub can be used to call APIs to access to the ledger services, transaction context, or to invoke other chaincodes.

Reference: https://fabric-docs-test.readthedocs.io/en/latest/API/ChaincodeAPI/

QUESTION 117
In Composer when declaring arguments are used to pass values. What argument value is NOT a value that is allowed?

A. string
B. integer
C. number
D. boolean

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://godoc.org/github.com/hyperledger/fabric/core/chaincode/shim#ChaincodeStub.PutState

QUESTION 118
What component of Hyperledger Composer captures the core data in a business network including the business model, transaction logic, and access controls?

A. Business Network Adapter
B. Business Network Interface
C. Business Network Card
D. Business Network Archive
E. Business Network API

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Business Network Archive: Capturing the core data in a business network including the business model, transaction logic, and access controls, the Business Network Archive packages these elements up and deploys them to a runtime. Stored as ".bna" files.

QUESTION 119
You are writing chaincode and you need to access the ledger's state. What two functions of the chaincode shim API do you select? (Select two.)

A. GetState
B. PutState
C. InvokeChaincode
D. GetStringArgs

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Reference: https://godoc.org/github.com/hyperledger/fabric/core/chaincode/shim#ChaincodeStub.PutState

QUESTION 120 The security module works in conjunction with the _____ module to provide access control service to any data recorded and business logic deployed on a chain network.

A. HSM

B. Membership Services
C. Chaincode
D. Consensus

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The security module works in conjunction with the membership service module to provide access control service to any data recorded and business logic deployed on a chain network.

QUESTION 121
Hyperledger Fabric includes a _____-based service for ordering and broadcasting network transactions. This service also provides crash fault tolerance to your network; meaning that if an accepted number of ordering service nodes are unavailable, the service continues to order and distribute blocks of transactions to channel peers.

What is the service based on?

A. Spark
B. Kafka
C. Reddis
D. Golang

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://console.bluemix.net/docs/services/blockchain/reference/v10_fabric.html#hyperledger-fabric

QUESTION 122
_____provide identity, privacy, and confidentiality to the network and is an abstraction of an architecture for permissioned operations.

A. Certificate Services
B. Membership Auditor
C. Reputation Manager
D. Certificate Manager
E. Membership Services

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Membership services provide identity, privacy, and confidentiality to the network. Abstraction of an architecture for membership operations.

QUESTION 123
REST (Representational State Transfer) Server is often used to proxy requests to Hyperledger chaincode.

What value does using REST APIS provide?

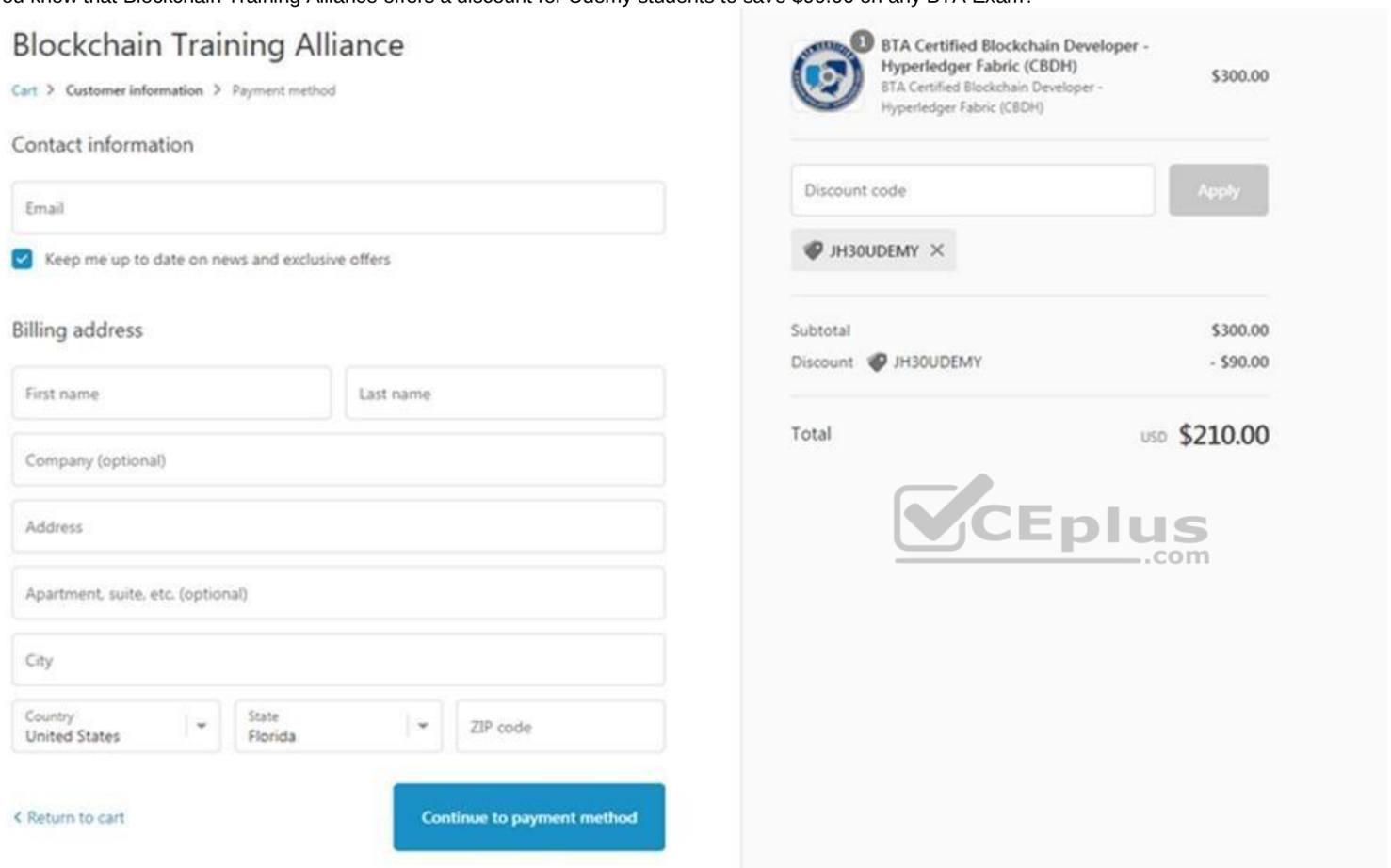
A. Provides a well-defined process for accessing blockchain services.
B. Provides a well-defined middleware for connecting to off chain services such as Bitcoin.
C. Provides a well-defined middleware for connecting to blockchain services.
D. Provides a well-defined process for accessing web services.

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:
Explanation:
A REST (Representational State Transfer) Server is often used to proxy requests to Hyperledger chaincode. This provides a well defined process for accessing blockchain services.

QUESTION 124
Did you know that Blockchain Training Alliance offers a discount for Udemy students to save $90.00 on any BTA Exam?



.

A. NO, that's ok Use Code JH30UDEMY
B. YES, Use Code JH30UDEMY

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 125
Reviewing the code below what are the two possible outcomes of the functions? (Select two.)

```
// Invoke is called per transaction on the chaincode. Each transaction is
// either a 'get' or a 'set' on the asset created by Init function. The Set
// method may create a new asset by specifying a new key-value pair.
func (t *SimpleAsset) Invoke(stub shim.ChaincodeStubInterface) peer.Response {
    // Extract the function and args from the transaction proposal
    fn, args := stub.GetFunctionAndParameters()

    var result string
    var err error
    if fn == "set" {
            result, err = set(stub, args)
    } else {
            result, err = get(stub, args)
    }
    if err != nil {
            return shim.Error(err.Error())
    }

    // Return the result as success payload
    return shim.Success([]byte(result))
}
```

A. Success
B. Shim.Error
C. Shim.Success
D. Error

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://hyperledger-fabric.readthedocs.io/en/release-1.4/chaincode4ade.html

QUESTION 126
What does REST stand for?

A. REST (Restructured State Transfer)
B. REST (Restructured State Transmission)
C. REST (Representational State Transmission)
D. REST (Real Time State Transfer)
E. REST (Representational State Transfer)

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:

REST (Representational State Transfer) Server is often used to proxy requests to Hyperledger chaincode. This provides a well-defined process for accessing blockchain services.