300-550

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Designing and Implementing Cisco Network Programmability

Exam A

QUESTION 1
How are authentication credentials sent in a Cisco APIC REST API authorization request?

A. by using OAuth
B. in a token in the header
C. by using Basic Auth
D. in JSON in the payload

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Authentication to the REST API for username/password-based authentication uses a special subset of request URIs, including aaaLogin, aaaLogout and aaaRefresh as the Dn target of a POST operation. Their payloads contain a simple XML or JSON payload containing the MO representation of an aaaUser object with attributes name and pwd defining the username and password, for example: <aaaUser name='admin' pwd='insieme'/>. The response to the POSTs will contain an authentication token as both a Set-Cookie header as well as an attribute to the aaaLogin object in the response named token, for which the XPath is / imdata/aaaLogin/@token if encoded as XML. Subsequent operations on the REST API can use this token value as a Cookie named "APIC-cookie" to have future requests authenticated.

Reference:
http://aci-troubleshooting-book.readthedocs.io/en/latest/rest.html

QUESTION 2
Which two statements about OpenFlow are true? (Choose two.)

A. The OpenFlow flow table contains header fields, counters, and actions
B. OpenFlow automatically determines network forwarding rules.
C. OpenFlow interfaces with the management plane
D. OpenFlow is a southbound protocol
E. OpenFlow is an agentless technology, like Ansible
F. OpenFlow is a northbound protocol

Correct Answer: AF
Section: (none)
Explanation

Explanation/Reference:
Reference:
http://archive.openflow.org/documents/openflow-spec-v1.0.0.pdf

QUESTION 3
Where is the node-ui.log stored on the Cisco APIC-EM appliance?

A. in the **/var/log/grapevine/services/node-ui** directory within the container that is running the node-ui instance
B. in the Cassandra database instance that is running within the container that is running the node-ui instance
C. in the **/opt/CSCOapicem/logs/node-ui** directory within the Cisco APIC-EM appliance root
D. in the **/var/log/grapevine/services/node-ui** directory within the Cisco APIC-EM appliance root
E. in the Cisco APIC-EM Cassandra database instance

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A host can be either an appliance, server or virtual machine where Cisco APIC-EM has been installed. Within the hosts are the Linux containers running instances of the Grapevine clients. The Grapevine clients run the different services. The Grapevine root runs as an application on the host itself and not in any Linux containers.

QUESTION 4
DRAG DROP

Drag and drop the technology on the left to its appropriate use case on the right.

Select and Place:

NETCONF	standards-based protocol that is used to distribute policies to programmable network elements
RESTCONF	used to distribute the traffic engineering database
OpenFlow	used to send RPCs to retrieve operational data via SSH
OpFlex	used to program the data plane of network devices
PCEP	uses HTTP verbs for getting and setting configuration data
BGP-LS	uses TLVs to pass messages between client and server

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 5
Which network configuration protocol uses JSON as a data representation format?

A. NETCONF
B. SOAP
C. RESTCONF
D. HTML

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
JSON-RPC is an RPC protocol built on JSON, as a replacement for XML-RPC or SOAP. It is a simple protocol that defines only a handful of data types and commands. JSON-RPC lets a system send notifications (information to the server that does not require a response) and multiple calls to the server that can be answered out of order. Example of a JSON-RPC 2.0 request and response using positional parameters.

Reference:
https://en.wikipedia.org/wiki/JSON

QUESTION 6
Which two statements about the NX-API are true? (Chose two.)

A. NX-API supports XML-RPC
B. NX-API is enabled by default
C. NX-API supports JSON-RPC
D. The nxapi_auth cookie expires in 30 minutes.
E. NX-API maps to NX-OS NETCONF.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
NX-API supports JSON-RPC, JSON, and XML formats.

Reference: http://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus7000/sw/programmability/guide/b_Cisco_Nexus_7000_Series_NX-OS_Programmability_Guide/b_Cisco_Nexus_7000_Series_NX-OS_Programmability_Guide_chapter_0101.html

QUESTION 7
Which two statements about YANG are true? (Choose two.)

A. YANG was conceptualized by Jerry Yang, former CEO of Yahoo
B. YANG provides security beyond SSL 3.0.
C. YANG can be executed similarly to a Python script.

D. YANG is used by NETCONF to define objects and data in requests and replies

E. YANG represents configuration? Operational, and RPC data.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Reference:
https://www.coursehero.com/file/7374202/1B-Case-Yahoo-Caroll-Bartz-Abridged/
http://www.cisco.com/c/dam/global/cs_cz/assets/ciscoconnect/2014/assets/tech_sdn10_sp_netconf_yang_restconf_martinkramolis.pdf

QUESTION 8
Which computer security concept is violated when a web server is written that uses the "root" account for all interactions with a Linux system?

A. RBAC

B. PermitRootLogin

C. certificate-based authentication

D. principle of least privilege

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Least privilege: This principle applies a need-to-know approach to trust relationships between security domains. The idea, which originated in military and intelligence operations, is that if fewer people know about certain information, the risk of unauthorized access is diminished. In network security, this results in restrictive policies, where access to and from a security domain is allowed only for the required users, application, or network traffic. Everything else is denied by default.

QUESTION 9
An organization leverages a multivendor network to sell connectivity services using Layer 3 VPN and VPLS. Where possible, the organization wants to use common APIs across vendors, in order to automate the configuration of network services. Which technology should be organization consider for the southbound interface?

A. BGP-LS

B. OpFlex

C. OpenFlow

D. NETCONF

E. PCEP

Correct Answer: ADE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Other technologies for southbound interfaces, such as NETCONF, YANG, PCEP, and BGP-LS, also allow controllers to centrally control networks.

Reference:
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiw1-vLu7nOAhXBAxoKHZUrCp4QFggcMAA&url=http%3A%2F%2Fwww-file.huawei.com%2F~%2Fmedia%2FCNBG%2FDownloads%2FTechnical%2520Topics%2FFixed%2520Network%2FWP-SDN%2520WAN%2520V12-EN&usg=AFQjCNHnjUfA7rYGbt2g4W5Kni1gJDyNnw&sig2=h9HG66D_RfmkWb0zw_7uZQ&bvm=bv.129422649,d.bGs&cad=rja

QUESTION 10
Which statement is used to associate a submodule and a parent module in a YANG data model?

A. import
B. namespace
C. include
D. belongs-to

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The "include" statement is used to make content from a submodule available to that submodule's parent module, or to another submodule of that parent module.

Reference: https://tools.ietf.org/html/rfc6020

QUESTION 11
Which two network configuration protocols use XML as a data representation format? (Choose two.)

A. NETCONF
B. CORBA
C. TOSCA

D. SNMP

E. RESTCONF

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Data modeling language for the definition of data sent over the NETCONF network configuration protocol.

Many network management protocols have associated data modeling languages. The first widely deployed Internet standard for network management was the Simple Network Management Protocol (SNMP).

Reference:
https://en.wikipedia.org/wiki/YANG

QUESTION 12
Which two security techniques are important to implement a secured management network that is used to access the management plane of a Cisco APIC cluster? (Choose two.)

A. VRFs

B. NAT

C. ipfilter

D. ACLs

E. route maps

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation: The Cisco APIC-EM should never be directly connected to the Internet. It should not be deployed outside of a NAT configured or protected datacenter environment.

Each contract is defined by a name and by filters (ACLs). Filters are a collection of layer 4 protocol and ports.

Reference: http://www.cisco.com/c/en/us/td/docs/cloud-systems-management/application-policy-infrastructure-controller-enterprise-module/1-0-x/deploy-guide/
b_apic-em_deploy_guide_v_1_0_0_x/b_apic-em_deploy_guide_v_1_0_0_x_chapter_0100.pdf

QUESTION 13
What are two node types in a YANG data model? (Choose two.)

A. grouping
B. leaf
C. container
D. module
E. instance

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The nodes types (for data modeling) are:
▪ leaf node - contains a single value of a specific type
▪ container node - contains a grouping of related nodes containing only child nodes, which can be any of the four node types

Reference:
http://www.cisco.com/c/en/us/td/docs/iosxr/ncs5000/DataModels/b-Datamodels-cg-ncs5000/b-Datamodels-cg-ncs5000_chapter_00.html

QUESTION 14
RESTCONF supports which two resources? (Choose two.)

A. /restconf/data
B. /restconf/operations
C. /restconf/diagnostic
D. /restconf/performance
E. /restconf/fault

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Reference:

QUESTION 15
Which ACI object is used to divide two applications that use the same IP address?

A. bridge domain

B. EPG

C. VRF

D. tenant

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
One or more bridge domains are associated with a context. All of the endpoints within the Layer 3 domain must have unique IP addresses because it is possible to forward packets directly between these devices if the policy allows it. A tenant can contain multiple contexts.

Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/1-x/aci-fundamentals/b_ACI-Fundamentals/b_ACI-Fundamentals_chapter_010001.html

QUESTION 16
You can use Visore to accomplish which task?

A. Monitor faults and events by using a subscription model

B. Read object properties and information

C. Update any properties of an object that are not read-only

D. Update any properties of an object

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Managed Object Browser, or Visore, is a utility built into the APIC that provides a graphical view of the managed objects (MOs) using a browser.

Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/1-x/api/rest/b_APIC_RESTful_API_User_Guide/

QUESTION 17
Cisco APIC-EM is used to add network-wide making policy for Cisco Spark users who are connected to a Cisco Catalyst 6500 device. After this change, wireless users complain about a delay in over applications. What is a possible reason for this delay?

A. The DSCP-to-CoS mappings were configured incorrectly

B. The policy was also deployed to the WLAN controller and overrode

C. You cannot automate policy for more than one real-time application at a time

D. Policy automation cannot be deployed for wireless and wired elements at the same time

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This value gets plumbed into the policy created on the wireless controller. Based on the user authentication, a configured policy and profile are applied to a specific user on the same WLAN.

Reference:
http://www.cisco.com/c/en/us/td/docs/wireless/controller/technotes/8-0/WLAN-Bonjour-DG.html

QUESTION 18
DRAG DROP

Drag and drop the network automation protocol on the left to the transport protocol that it supports on the right. Some options are used more than once.

Select and Place:

NETCONF	HTTP
RESTCONF	HTTP/2
gRPC	HTTPS
	SSH
	SOAP

Correct Answer:

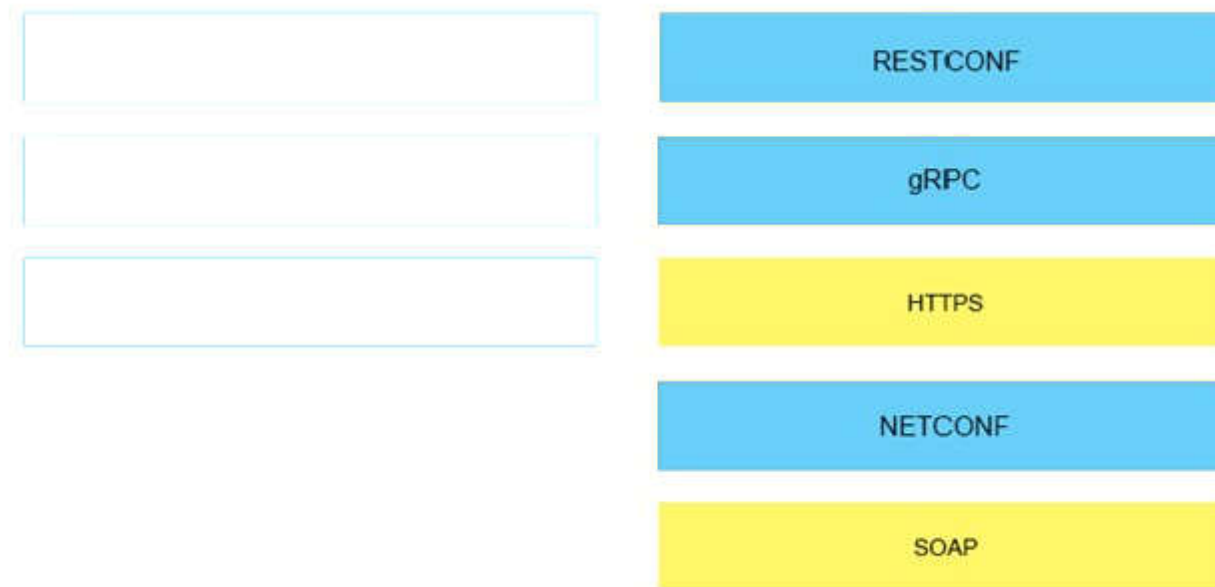|	
	RESTCONF
	gRPC
	HTTPS
	NETCONF
	SOAP

Section: (none)
Explanation

Explanation/Reference:

QUESTION 19
Visore uses which protocol to retrieve information from the Cisco APIC?

A. REST API
B. OpFlex
C. gRPC
D. Visore API
E. MongoDB

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:
Explanation:
The Cisco APIC software development kit (SDK) uses the REST API to read and write the configuration of Cisco APIC, using the object model to describe the current and desired states.

Reference:
http://www.cisco.com/c/en/us/solutions/collateral/data-center-virtualization/application-centric-infrastructure/white-paper-c11-733105.html

QUESTION 20
Which communication mechanism does NETCONF use?

A. SOAP over HTTPS
B. YAML over SSH
C. YAML over HTTPS
D. RPC over SSH

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
NETCONF uses a simple RPC-based mechanism to facilitate communication between a client and a server. The client can be a script or application typically running as part of a network manager. The server is typically a network device. The terms "device" and "server" are used interchangeably in this document, as are "client" and "application".

Reference:
https://tools.ietf.org/html/rfc6241

QUESTION 21
Management protocols like NETCONF access network elements on well-known ports. Which design practice hardens a network device implementation?

A. Specify the source interface for SSH
B. Limit access to port 830, well-known clients, and SSH VTY.
C. Enable CoPP.
D. Configure **ip http secure-server.**

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:
Explanation:
The management plane is used in order to access, configure, and manage a device, as well as monitor its operations and the network on which it is deployed. The management plane is the plane that receives and sends traffic for operations of these functions. You must secure both the management plane and control plane of a device, because operations of the control plane directly affect operations of the management plane. This list of protocols is used by the management plane:

- Simple Network Management Protocol
- Telnet
- Secure Shell Protocol

Reference:
http://www.cisco.com/c/en/us/support/docs/ip/access-lists/13608-21.html

QUESTION 22
You are developing a YANG data model to represent the functionality of a new network application. Which two YANG statements do you use to organize the model into a hierarchy? (Choose two.)

A. module
B. grouping
C. submodule
D. augment
E. container

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:
Reference:
https://tools.ietf.org/html/rfc6244

QUESTION 23
Which network is used by default for cluster sync between Cisco APICs?

A. out of band management network
B. VXLAN overlay network
C. in-band management network

D. infra-VTEP network

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 24
YANG modeling supports which two comment styles? (Choose two.)

A. A block comment is enclosed within "<--"and"-->".
B. A single-line comment starts with "#" and ends at the end of the line.
C. A single-line comment starts with "!" and ends at the end of the line.
D. A block comment is enclosed within "/*" and "*/".
E. A single-line comment starts with "//" and ends at the end of the line.

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Comments are C++ style. A single line comment starts with "//" and ends at the end of the line. A block comment is enclosed within "/*" and "*/".

Reference:
https://tools.ietf.org/html/draft-ietf-netmod-yang-00

QUESTION 25
A web service returns a JSON object to your Python script. What is the most logical object in which to store the JSON response?

A. an integer
B. a dictionary
C. a tuple
D. a string
E. a list

Correct Answer: A

QUESTION 26
After completing the OCS setup wizard, the configuration does not get applied. Which two log files should you check to determine the errors that occurred?
(Choose two.)

A. /var/log/node_config_state.log
B. /var/log/platform_services.log
C. /var/log/ansible.log
D. /var/log/messages.log
E. /var/log/controller.log

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 27
Which concept should you use whet trying to improve a frequently repeated and predictable manual process?

A. scalability
B. lifecycle management
C. deployment
D. orchestration
E. automation

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Manual processes often result in delays in locating archived specimens for add-on or reflex testing. One way to reduce or eliminate potential workflow disruptions is

to automate storage and retrieval.

Reference:
http://www.mlo-online.com/the-lean-lab-automation-workflow-and-efficiency.php

QUESTION 28
Which two parts are required for a RESTful API call? (Choose two.)

A. resource
B. parameter
C. method
D. query
E. fragment

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Reference:
http://stackoverflow.com/questions/4024271/rest-api-best-practices-where-to-put-parameters

QUESTION 29
Which two protocols are examples of southbound APIs? (Choose two.)

A. VXLAN-GPE
B. LLDP
C. NETCONF
D. IPFIX
E. SYSLOG
F. OpFlex

Correct Answer: CF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Communication between the controller and network devices, ACI supports OpFlex and RESTful API for the southbound protocols.

Reference:
http://www.networkcomputing.com/networking/understanding-openflow-vxlan-and-ciscos-aci/551182896

QUESTION 30
What is the top-level object for the MIT in ACI?

A. home

B. root

C. uni

D. top

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference:
http://www.cisco.com/c/en/us/products/collateral/cloud-systems-management/aci-fabric-controller/white-paper-c11-729999.html (See the Figure 2).

QUESTION 31
Which statement about Cisco ASA REST API calls is true?

A. GET and POSR methods are supported, whereas PUT is not supported.

B. Calls block other security management protocols, such as Cisco ADSM.

C. Changes to the configuration are automatically written to the startup configuration.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
▪ GET– Retrieves data from the specified object.
▪ PUT – Adds the supplied information to the specified object; returns a 404 Resource Not Found error if the object does not exist.
▪ POST – Creates the object with the supplied information.

Reference: http://www.cisco.com/c/en/us/td/docs/security/asa/api/qsg-asa-api.html

QUESTION 32
DRAG DROP

Drag and drop the HTTP status code number on the left to the corresponding status code name on the right.

Select and Place:

200	Bad Request
401	Unauthorized
204	OK
400	No Content
404	Not Found

Correct Answer:

	400
	401
	200
	204
	404

QUESTION 33
Which statement about agentless configuration management system is true?

A. It requires managed hosts to have an interpreter for a high-level language such as Python or Ruby.
B. It uses existing protocols to interface with the managed host.
C. It uses compiled languages as the basis on the domain-specific language to interface with managed hosts.
D. It requires managed hosts to connect to a centralized host to receive updated configurations.
E. It requires a software package to be installed on the managed host.

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Adding the managed hosts to Management Server using an agentless configuration

Reference: https://www.veritas.com/support/en_US/article.DOC6776

QUESTION 34

```
Active Internet connections (including servers)
Proto Recv-Q Send-Q  Local Address           Foreign Address        (state)
tcp4      0      0    10.1.1.2.61044          192.168.1.2.443        ESTABLISHED
tcp6      0      0    ::1.22                  ::1.60571              ESTABLISHED
tcp4      0      0    127.0.0.1.8888          *.*                    LISTEN
tcp46     0      0    *.8081                  *.*                    LISTEN
tcp4      0      0    *.22                    *.*                    LISTEN
tcp6      0      0    *.22                    *.*                    LISTEN
```

Refer to the exhibit. Which Linux command provides output that is similar to the output in the exhibit?

A. **cat/etc/hosts**
B. **tcpdump -a**
C. **ifconfig -av**
D. **netstat -an**

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
One of the most dearest commands to every linux admin is 'ifconfig'.**Linux ifconfig command** provides a convenient way to view or modify the network settings of a network interface. Most of the time, ifconfig command is used to get the information about network interface configurations. However, ifconfig also reports many other useful information related to the status of network interface.

Reference:
http://blmrgnn.blogspot.com/2014/01/linux-ifconfig-command-output-explained.html

QUESTION 35
`<operation> /<api-entry>/<path>?<query>#<fragment>`

Refer to the exhibit. Which two URI entries are optional and functional in the RESTCONF URI structure that is shown? (Choose two.)

A. path
B. query
C. operation
D. fragment
E. api-entry

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Reference: http://ftp.bme.hu/documents/internet-drafts/draft-bierman-netconf-restconf-02.txt

QUESTION 36
Which two initial actions should you take when exploring automation for ACI? (Choose two.)

A. Develop an open-source package or SDK
B. Look for an open-source package or SDK
C. Write scripts that leverage the Python standard library
D. Use the API inspector and test API calls.
E. Use the **ncclient** command to explore the NETCONF capabilities of the Cisco APIC.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 37
Which service does a VIRL host use to validate a license?

A. Puppet

B. Ansible

C. Chef

D. SaltStack

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Until you successfully connect to Cisco's SaltStack infrastructure and validate your VIRL license you can expect to encounter a number

Reference:
http://virl-dev-innovate.cisco.com/workstation.php

QUESTION 38
Which two queries are supported to access objects within the ACI Management Information Tree? (Choose two.)

A. DN query

B. fabric query

C. RN query

D. class query

E. property query

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Visore is a read-only management information tree (MIT) browser. It enables distinguished name (DN) and class queries with optional filters.

Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/1-x/aci-fundamentals/b_ACI-Fundamentals/
b_ACI_Fundamentals_BigBook_chapter_01001.pdf

QUESTION 39
Refer to the exhibit. A network engineer created a Bash script to automate some network device tasks. What are two potential risks when a network operator runs this script as written? (Choose two.)

```
#!/bin/sh

device_file=$1
cfg_file=$2

IFS='
'

for i in $(cat ${device_file}); do
    ssh -l opsteam ${i} copy ${cfg_file} runn &
done
```

A. The script results in network devices losing connectivity.
B. The script executes too slowly.
C. The script configures unintended commands.
D. The script exposes users' passwords.
E. The script passes configuration data in cleartext.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 40
You want to implement a new feature in a home-grown network automation tool. Because your development team uses the Agile development methodology, which documentation must you create for them, in order to put this feature on the roadmap?

A. ROI analysis
B. case study
C. user story
D. SCIPAB breakdown
E. enhancement request

Correct Answer: C

Explanation/Reference:
Explanation:
With the development team to define and prioritize granular units of functionality referred to as "User Stories". The development team estimates, plans, and delivers the highest priority user stories in the form of working, tested software on an iteration-by-iteration basis. In order to maximize productivity, the practices provide a supportive, lightweight framework to guide a team and ensure high-quality software.

Reference:
https://www.versionone.com/agile-101/agile-methodologies/

QUESTION 41
Which YANG statement defines a block of other statements that can be easily referenced in other areas of a data model?

A. grouping
B. container
C. submodule
D. module

Correct Answer: D

Explanation/Reference:
Explanation:
module: A YANG module defines a hierarchy of nodes that can be used for NETCONF-based operations. With its definitions and the definitions it imports or includes from elsewhere, a module is self-contained and "compilable".

Reference:
https://tools.ietf.org/html/rfc6020

QUESTION 42

```
module my-interfaces {
     namespace "com.my-interfaces" ;

          container interfaces {
               list interface {
                    key name;
                    leaf name { type string; }
                    leaf admin-status { type enum; }

          rpc flap-interface {
               input {
                    leaf name { type string; }
               }
               output {
                    leaf result { type boolean; }
               }
          }
     }
```

Refer to the exhibit. Based on the YANG data model snippet, which RESTCONF URI should you use to retrieve data from the interfaces container?

A. /restconf/data/my-interfaces:interfaces
B. /restconf/data/my-interfaces:container:interfaces
C. /restconf/operations/my-interfaces:interfaces
D. /restconf/data/com.my-interfaces:interfaces

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference:
https://www.iab.org/wp-content/IAB-uploads/2016/04/IoT-IAB-workshop-terminology-bclaise.pdf (See the page no 8, first line in the right corner)

QUESTION 43
DRAG DROP

Drag and drop the tools on the left to their corresponding functions on the right.

Select and Place:

Git	Developer Collaboration
GitHub	Automated Testing
Jenkins	Configuration Application
Ansible	Version Control

Correct Answer:

	GitHub
	Jenkins
	Ansible
	Git

Section: (none)
Explanation

Explanation/Reference:

QUESTION 44
Which authentication method can be used to access the ACI APIC controller?

A. REST API using HTTP and header-based authentication
B. REST API using HTTPS and JSON-formatted username/password payload
C. SOAP API using header-based authentication
D. REST API using SSL and header-based authentication

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The primary authentication method uses a username and password and the APIC REST API returns an authentication token that can be used for future access to the APIC.

Reference: http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/kb/b_KB_Signature_Based_Transactions.html

QUESTION 45
What is the best way to specify the location of Python within a script?

A. **#!usr/bin/env bash**
B. **#!usr/bin/env python**
C. **#!usr/local/bin/python**
D. **#!usr/bin/python**
E. **#!/scriptname**

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If you have several versions of Python installed, /usr/bin/env will ensure the interpreter used is the first one on your environment's $PATH. The alternative would be to hardcode something like #!/usr/bin/python; that's ok, but less flexible.

Reference:
http://stackoverflow.com/questions/2429511/why-do-people-write-usr-bin-env-python-on-the-first-line-of-a-python-script

QUESTION 46
Which statement about NX-API REST is true?

A. Configuration and state information is stored in the MIT.
B. NX-API REST requires a commercial license to enable.
C. Partial commits are supported.
D. Fault objects may be queried, but event objects cannot be queried.

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:
Explanation:
NX-API REST provides access to objects stored in the MIT. Managed objects (MOs) are associated with a well-defined REST URI, and can be queried or configured from NX-API REST using their URI.

Reference:
https://opennxos.cisco.com/static/nexus/getting_started/programmability/chapters/cisco_nx-api_rest_interface1898.xhtml

QUESTION 47
Which two northbound protocols are supported by the Cisco NSO Controller? (Choose two.)

A. REST
B. SOAP
C. OpenFlow
D. NETCONF
E. PCEP

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Which northbound interfaces does NSO support?
The following interfaces are auto-rendered for all services and devices:
▪ CLI: for network engineers that prefer a Juniper or Cisco style command-line interface
▪ Web interface: for network engineers that prefer a graphical interface (the Web interface is highly customizable)
▪ REST: for programmatic access (exactly the same feature set as the CLI and Web interface)
▪ Java/C: for building custom applications and service provisioning logic
▪ JavaScript: for embedding NSO functions in portals
▪ NETCONF: for importing and exporting XML configurations
▪ SNMP: for reading status and receiving NSO alarms
▪ Python: for scripting network wide configuration changes

Reference:
https://developer.cisco.com/site/nso/help/faq/

QUESTION 48
The Cisco APIC REST API supports which two methods? (Choose two.)

A. POST

B. PATCH

C. PUT

D. OPTIONS

E. GET

F. RESET

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The API supports HTTP POST, GET, and DELETE request methods

Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/1-x/api/rest/b_APIC_RESTful_API_User_Guide/b_IFC_RESTful_API_User_Guide_chapter_010.html

QUESTION 49
Which tool streamlines the development of network applications?

A. Java Runtime Engine

B. software development kit

C. command-line interface

D. General Public License

E. package management system

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Streamlines software development and integration effort required for advanced imaging and vision applications
Imagine software developers could run their entire imaging / vision project on the (more familiar) CPU environment, while the code automatically gets translated and optimized on the (more power-efficient) DSP - With the CEVA Application Developer Kit (ADK) it is now possible

Reference:
http://www.ceva-dsp.com/Application-Developer-Kit

QUESTION 50
Which two installable packages does the Cisco API Python SDK require? (Choose two.)

A. ciscoasi
B. acimodel
C. modpy-aci
D. acicobra
E. ciscopython
F. aci-toolkit

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/1-x/api/python/install/b_Install_Cisco_APIC_Python_SDK_Standalone.html

QUESTION 51
What is the main benefit of having an out-of-band management network for an infrastructure controller?

A. Data plane disruption is less likely.
B. It provides separation on the management and data planes.
C. Configuration of the controller is faster and simpler
D. It is less expensive.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Out-of-band management is presented as a more efficient way to cut costs and improve service levels and productivity.

Reference:

QUESTION 52
DRAG DROP

Drag and drop the protocol on the left to its purpose in ACI fabric discovery on the right.

Select and Place:

LLDP		propagates configuration from APICs to leafs and spines
IS-IS		builds the forwarding table for the overlay
VXLAN		transports fabric information during the discovery process
OpFlex		creates a Layer 2 overlay on a Layer 3 network

Correct Answer:

	LLDP
	IS-IS
	OpFlex
	VXLAN

Section: (none)
Explanation

Explanation/Reference:

QUESTION 53
In ACI, where is a concrete object in the MIT most often located?

A. hypervisor DB
B. integrated Layer 4 to Layer 7 device
C. switch ASIC
D. leaf or spine

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

Explanation:
• Resolved = created by the APIC as a unit/object to communicate and pass information to the switches
• Concrete = objects used by the switches to program hardware

Reference:
https://clnv.s3.amazonaws.com/2015/usa/pdf/BRKACI-2101.pdf

QUESTION 54
Which field in Visore can you use to find a unique instance of a managed object?

A. lcOwn
B. dn
C. class name
D. classId

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To query for a particular class, enter the class name in the **Class or DN** field and click **Run Query**. Visore sends a**configResolveClass** method to Cisco IMC and the requested MO is displayed in a tabular format

Reference:
http://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/c/sw/api/2-0/b_Cisco_IMC_api_2_0/b_Cisco_IMC_api_2_0_appendix_01000.html

QUESTION 55
How many Cisco APIs must fail, in order for a customer running an ACI fabric with a cluster of five APICs to experience data loss?

A. 4
B. 3
C. 1
D. 2
E. 5

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference:
http://www.cisco.com/c/en/us/solutions/collateral/data-center-virtualization/unified-fabric/white-paper-c11-730021.html

QUESTION 56
Which command tests a REST API?

A. **nc**
B. **tcpdump**
C. **curl**
D. **telnet**

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Test your REST api from the command line, you can use curl.

Reference:
http://www.codingpedia.org/ama/how-to-test-a-rest-api-from-command-line-with-curl/

QUESTION 57
Which two statements about IOS XE on a Cisco CSR1000v Router programmatic interface are true? (Choose two.)

A. It supports I2RS.
B. It supports open YANG data models
C. It supports BGP-LS/PCEP as a southbound interface
D. It supports RESTCONF
E. It supports OpFlex

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 58
Refer to the exhibit. Which effect does the parameter **?session=test** have in this VIRL API call?

```
curl -X POST -u guest:guest -- header "Content-Type/text/xml; charset=UTF-"--
data @API.virl http://virl-host:19399/simengine/rest/launch?session=test
```

A. The API call is parsed and validated by VIRL, but no simulation is started.
B. The topology file "APIvirl" is validated for proper structure content.
C. The simulation is started in a special "test" mode that protects it from adversely affecting other simulations
D. The simulation is started with the name "test".

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 59
Which two protocols can the Cisco APIC-EM use to communicate with supported platforms? (Choose two.)

A. OpFlex
B. SNMPv2c
C. SSH
D. HTTPS
E. RPC
F. OpenFlow

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Cisco APIC-EM communicates with its supported platforms using the following protocols:
• SNMPv2c or SNMPv3
• Telnet or SSH

Reference:

QUESTION 60
Refer to the exhibit. To make this code work properly, which line of code should you insert at the blank line?

```
import requests
import pprint
pp = pprint.PrettyPrinter(indent=4)
requests.packages.urllib3.disable_warnings() # Disable
warnings

response_json = None
payload = None
aTicket = <TICKET>
header = {"X-Auth-Token": aTicket, "content-type" :
"application/json"}
url = "https://sandboxapic.cisco.com:9443/api/v1/user"


_____

print('Status Code', r.status_code)
response_json = r.json()
pp.pprint(response_json)
```

A. **r = requests.get(url, headers=header, verify=False)**
B. **r = requests.post(url, data:payload, headers:header, verify:False)**
C. **r = requests.post(url, data=payload, headers=header, verify=False)**
D. **r = requests(method="POST", url, data=payload, headers=header, verify=False)**

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 61
Which two protocols use YANG as an underlying data modeling language? (Choose two.)

A. SOAP
B. NETCONF
C. RESTCONF
D. REST
E. HTTP
F. SSH

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
One result of the popularity of YANG is that now operators wanting to develop their own protocol for management use YANG as the data modeling language. This includes CoMI, which defines a management interface for constrained devices. Even among existing protocols NETCONF and RESTCONF, there are different encoding

Reference:
https://www.internetsociety.org/publications/ietf-journal-november-2015/yang-netconf

QUESTION 62
How is a service ticket used when constructing a Cisco APIC-EM API request?

A. to identify the service type
B. to identify a service on the controller
C. to determine the request type
D. as a security token

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 63
The network operator asks you to change the config setting on one specific host. All 300 hosts are managed with Puppet. Which action results in the requested change?

A. This is an unsupported feature of Puppet, and Chef or Ansible must be used to make this change.
B. Go to that host and make the config change. Puppet sees the local override and skips that part.
C. Add an if statement to the Puppet manifest, and add specific config settings, in case Puppet is running on that host.
D. Add a node-based variable lookup override in Hiera, so that if Puppet runs on that host, it takes the variable from Hiera.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 64
Which two data representation formats are used in RESTCONF? (Choose two.)

A. HTML
B. YAML
C. HML
D. GML
E. ASN.1
F. JSON

Correct Answer: DF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 65
Which feature enables service function chaining to steer traffic to virtual network functions?

A. GRE
B. VXLAN

C. EH
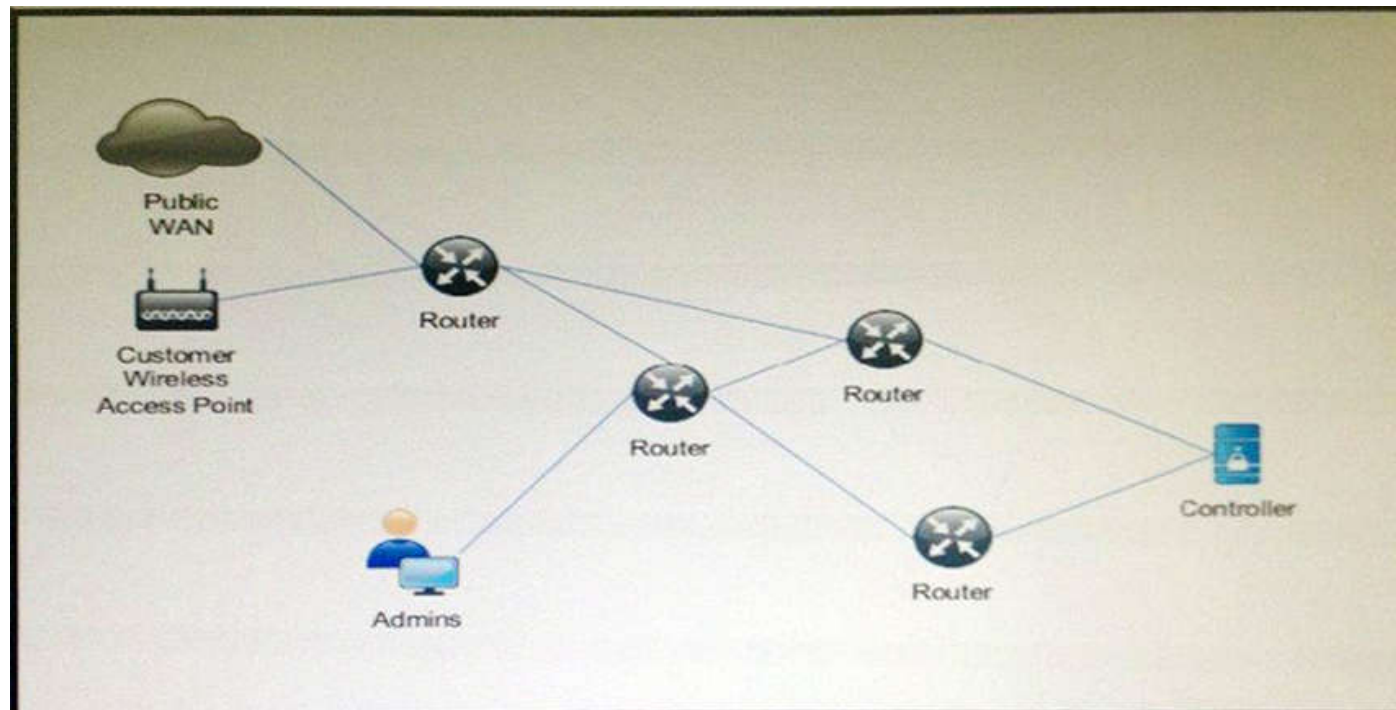
D. NSH

E. REST

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference:
https://www.opennetworking.org/images/stories/downloads/sdn-resources/onf-specifications/L4-L7_Service_Function_Chaining_Solution_Architecture.pdf

QUESTION 66

Refer to the exhibit. Which action effectively secures the controller?

A. Enable HTTP to HTTPS redirect.

B. Require complex passwords.

C. Use NUT on the router before the controller.

D. Blacklist the public WAN.

E. Whitelist the Admins network and block all others.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 67
Which statement indicates that an element in a YANG data model contains data that describes operational state information about the device or service?

A. state true

B. config false

C. mode state

D. state enabled

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 68
DRAG DROP

Drag and drop the protocol on the left to its correct description on the right.

Select and Place:

TLS	provides encryption for web-based calls
HTTPS	provides encrypted shell access
HTTP	provides communication security over a network
gRPC	provides clear access for web-based calls
SSH	enables client/server communication for distributed applications

Correct Answer:

	HTTPS
	SSH
	TLS
	HTTP
	gRPC

QUESTION 69
Which two tools help you to program against Nexus APIs? (Choose two.)

A. Jenkins
B. Cisco Nexus 1000v
C. VIRL
D. DevNet sandboxes
E. Cisco Open SDN Controller

Correct Answer: AD
Section: (none)

Explanation

Explanation/Reference:

QUESTION 70
Which statement about sharding in ACI is true?

A. Sharding is the technology that is designed to prevent "split-brain" scenarios in ACI.
B. Sharding is the service that presents the API on a Cisco APIC.
C. Sharding is the mechanism for the distributing the database and configuration changes on a Cisco APIC cluster.
D. Sharding is the distributed topology that is used in ACI (also referred to as spine-leaf).

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Cisco APIC cluster uses a technology from large databases called sharding to distribute data among the nodes of the cluster. Data stored in the APIC is portioned to shards. Each shard has three replicas that are stored in the three controller nodes. For each shard, one controller is elected as leader and the rest are followers.

Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/kb/b_kb-aci-stretched-fabric.html