

# DevNet Associate (Version 1.0) – Module 3 Exam Answers

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## Module 3: Software Development and Design Exam Answers

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**1. A developer issues the Linux command `pip3 freeze` in an activated Python 3 virtual environment. What is the function that is provided by the command?**

- to output a list of installed Python packages
- to lock the current virtual environment
- to prepare the environment before installing a Python package
- to deactivate the current virtual environment

**Explanation:** The `pip3 freeze` Linux command is used to output a list of Python 3 packages installed in the current working environment.

**2. What are two characteristics of the Git version control system? (Choose two.)**

- It is a local vcs.
- It is a centralized VCS.
- **It is a distributed VCS.**
- It is Microsoft proprietary.
- It is Cisco proprietary.
- **It is open source**

**Explanation:** Git is available for MacOS, Windows, and Linux/Unix. It is an open source implementation of a distributed version control system.

**3. Match the Lean term with a description.**



**4. What characteristic describes a formal code review?**

- Code is automatically sent for review by source code management systems once it is checked in.
- **The entire code base is reviewed in a series of meetings.**
- It utilizes a peer code review tool to identify code that needs retesting.
- It provides direct interaction between the review team and the code author.

**Explanation:** In a formal code review developers have a series of meetings to review the whole code base and go over the code line by line, discussing each one in detail. The formal code review process promotes discussion between all of the reviewers.

**5. Which fundamental Lean principle forms the basis from which all other Lean principles flow?**

- build integrity in
- **eliminate waste**
- deliver as fast as possible
- amplify learning

**Explanation:** The Lean SDLC methodology is built on seven principles which are focused on minimizing waste and maximizing value to the customer. The principle of eliminating waste is the most fundamental and it is the one from which all the other principles flow.

**6. When a unified diff file is being reviewed, which symbol is used to indicate that a line has been added?**

- /dev/null
- @@
- +

**7. What special characters are used to enclose JSON objects?**

- forward slash /
- square brackets []
- **curly braces {}**
- parenthesis ()

**Explanation:** Individual objects in JSON comprise key/value pairs. These individual pairs may be surrounded by braces. JSON objects may also contain multiple key/value pairs that are separated by commas, in which case the entire object is enclosed in braces.

**8. What are two features of the formal code review? (Choose two.)**

- For a quicker turnaround, it involves only one reviewer
- It involves the developer going through code with the reviewer line-by-line.
- **It promotes discussion among all of the reviewers.**
- It allows the developer to make changes on the spot.
- **It involves a review of the entire code base in a series of meetings.**

**Explanation:** In a formal code review, developers have a series of meetings to review the whole codebase and go over the code line by line, discussing each one in detail. The formal code review process promotes discussion among all of the reviewers.

**9. Which statement describes the Waterfall methodology of software development?**

- Process tasks are broken up into time-boxed iterations called sprints.
- **Each step in the process must be completed before the next step starts**
- It emphasizes elimination of wasted effort and maximizes customer value.
- Multiple steps in the process are started simultaneously.

**Explanation:** The Waterfall model is the earliest SDLC approach. The phases follow a linear sequential flow, where each phase begins only when the previous phase is complete.

**10. What is clean code?**

- code that has no reviewer comments
- code that has passed functional testing
- **code that is easy to read and understand**
- code that performs a discrete task

**Explanation:** Clean code is code that meets common principles that make it easy to read and understand.

Some of these principles are as follows:

Neat formatting to generally-accepted practices

Code intuitive variables and objects

Documented with appropriate comments

Written so that it can be reused and easily unit-tested

#### 11. Match the Git command with its function.

**git init**

**git pull**

**git push**

updates the local copy of the Git repository with the content of the remote Git repository

**git pull**

creates an empty Git repository or makes an existing folder a Git repository

**git init**

updates the remote Git repository with the content changes from the local Git repository

**git push**

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#### 12. What is the role of the view component in the Model-View-Controller (MVC) flow?

- **It accepts selected data and displays the visual representation to the user.**
- It accepts the input and applies the required rules to format the data.
- It requests user input and manipulates it to fit the format for the model.
- It manages the data, logic and rules of the application.

**Explanation:** The Model-View-Controller (MVC) design pattern abstracts code and responsibility into three distinct components: model, view, and controller. The controller accepts the input, manipulates the data, and sends the manipulated data to the model. The view is the visual representation of the data. There can be

multiple representations of the same data.

**13. A developer is constructing some functions in Python. When is a function referred to as a module in Python?**

- when the function is declared during the execution of a Python program
- when the function is initiated during the execution of a Python program
- **when the function is packaged in a single Python file**
- when the function is used for the first time

**Explanation:** Modules are a way to build independent and self-contained blocks of code that can be reused. A module consists of a set of functions and typically contains an interface that allows for integration with other modules. A module, in Python, is a Python file with packaged functions.

**14. A student is learning Python using the interactive interpreter mode. The student issues these commands:**

```
>>> class Uri():
...     def __init__(self, host, prot):
...         self.host = host
...         self.prot = prot
...         self.url = self.prot + "://" + self.host
>>>
```

**Which command should the student use to create an object with one attribute being a valid URL?**

- >>> url2 = Url(URL, 'http://', 'www.cisco.com')
- >>> url2 = Url('http', '://', 'www.cisco.com')
- **>>> url2 = Url('www.cisco.com', 'http')**
- >>> url2 = Url('http', 'www.cisco.com')

**Explanation:** In Python, classes are a means of bundling data storage and functionality in a single structure. Each class declaration defines a new object type. As with other Python data structures and variables, class objects are instantiated as they are first used, rather than being predeclared, by using an assignment statement.

**15. A developer issues a Linux command `python3 -m venv devenv`. What is the developer trying to achieve?**

- to activate the Python 3 virtual environment named devenv
- to enter the Python 3 virtual environment named veny using the devnet tool sets
- to install the devnet tool sets in the Python 3 virtual environment named veny
- **to create a Python 3 virtual environment named devenv**

**Explanation:** The syntax for creating a Python 3 virtual environment in a Linux system is `python3 -m venv virtual_environment`, where `venv` is the Python 3 module to create a virtual environment and `-m` is the switch to tell Python 3 the `venv` module is to be used.

**16. When a unified .diff file is being reviewed, which symbol is used to indicate that a line has been added?**

```
@@
/dev/null
+
```

**Explanation:** The symbols used in a unified diff file are as follows:

+: Indicates that the line has been added

-: Indicates that the line has been removed

/dev/null: Shows that a file has been added or removed

@@: Indicates that the next block of information is starting