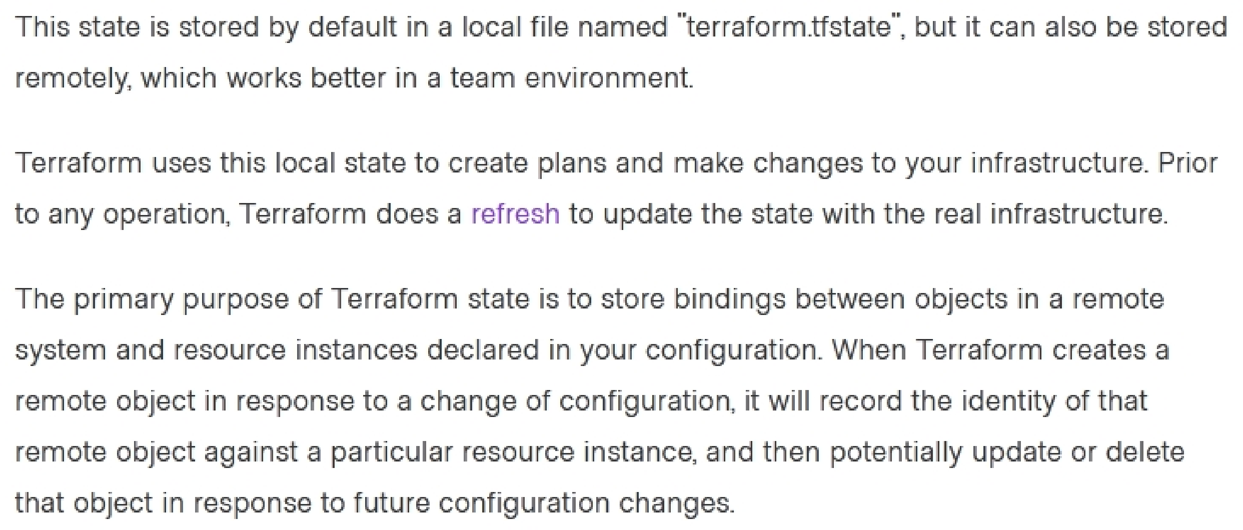
Terraform associate exam

选择题

Question #1
The terraform.tfstate file always matches your currently built infrastructure.
A. True
B. False
答案：*B*
https://www.terraform.io/docs/language/state/index.html



This state is stored by default in a local file named "terraform.tfstate", but it can also be stored remotely, which works better in a team environment.

Terraform uses this local state to create plans and make changes to your infrastructure. Prior to any operation, Terraform does a refresh to update the state with the real infrastructure.

The primary purpose of Terraform state is to store bindings between objects in a remote system and resource instances declared in your configuration. When Terraform creates a remote object in response to a change of configuration, it will record the identity of that remote object against a particular resource instance, and then potentially update or delete that object in response to future configuration changes.

Question #2
One remote backend configuration always maps to a single remote workspace.
A. True
B. False
答案：**B**

Question #3
How is the Terraform remote backend different than other state backends such as S3, Consul, etc.?
A. It can execute Terraform runs on dedicated infrastructure on premises or in Terraform Cloud
B. It doesn't show the output of a terraform apply locally
C. It is only available to paying customers
D. All of the above
答案：*A*
解析：
If you and your team are using Terraform to manage meaningful infrastructure, we recommend using the remote backend with Terraform Cloud
or Terraform

Enterprise.
https://www.terraform.io/docs/language/settings/backends/index.html

Question #4

What is the workflow for deploying new infrastructure with Terraform?
A. terraform plan to import the current infrastructure to the state file, make code changes, and terraform apply to update the infrastructure.
B. Write a Terraform configuration, run terraform show to view proposed changes, and terraform apply to create new infrastructure.
C. terraform import to import the current infrastructure to the state file, make code changes, and terraform apply to update the infrastructure.
D. Write a Terraform configuration, run terraform init, run terraform plan to view planned infrastructure changes, and terraform apply to create new infrastructure.
答案：D

Question #5

A provider configuration block is required in every Terraform configuration.
Example:
Provider “provider_name” {
…..}
A. True
B. False
答案：B

Question #6

You run a local-exec provisioner in a null resource called null_resource.run_script and realize that you need to rerun the script.
Which of the following commands would you use first?
A. terraform taint null_resource.run_script
B. terraform apply -target=null_resource.run_script
C. terraform validate null_resource.run_script
D. terraform plan -target=null_resource.run_script
答案：A

Question #7

Which provisioner invokes a process on the resource created by Terraform?
A. remote-exec
B. null-exec
C. local-exec
D. file
答案：A
解析：

The remote-exec provisioner invokes a script on a remote resource after it is created.
https://www.terraform.io/docs/language/resources/provisioners/remote-exec.html

Question #8
Which of the following is not true of Terraform providers?
A. Providers can be written by individuals
B. Providers can be maintained by a community of users
C. Some providers are maintained by HashiCorp
D. Major cloud vendors and non-cloud vendors can write, maintain, or collaborate on Terraform providers
E. None of the above
答案：E

Question #9
What command does Terraform require the first time you run it within a configuration directory?
A. terraform import
B. terraform init
C. terraform plan
D. terraform workspace
答案：B
解析：terraform init command is used to initialize a working directory containing Terraform configuration files.
https://www.terraform.io/docs/cli/commands/init.html

Question #10
You have deployed a new webapp with a public IP address on a cloud provider. However, you did not create any outputs for your code.
What is the best method to quickly find the IP address of the resource you deployed?
A. Run terraform output ip_address to view the result
B. In a new folder, use the terraform_remote_state data source to load in the state file, then write an output for each resource that you find the state file
C. Run terraform state list to find the name of the resource, then terraform state show to find the attributes including public IP address
D. Run terraform destroy then terraform apply and look for the IP address in stdout
答案：**C**

Question #11
Which of the following is not a key principle of infrastructure as code?
A. Versioned infrastructure
B. Golden images
C. Idempotence

D. Self-describing infrastructure
答案: B
解析:
https://docs.microsoft.com/en-us/azure/devops/learn/what-is-infrastructure-as-

Question #12
Terraform variables and outputs that set the "description" argument will store that description in the state file.
A. True
B. False
答案: B

Question #13
What is the provider for this fictitious resource?

```
Resource “aws_vpc” “main” {
        Name = “test”
}
```

A. vpc
B. main
C. aws
D. test
答案: C
解析:
https://docs.aws.amazon.com/cloudformation-cli/latest/userguide/resource-types.html

Question #14
If you manually destroy infrastructure, what is the best practice reflecting this change in Terraform?
A. Run terraform refresh
B. It will happen automatically
C. Manually update the state fire
D. Run terraform import
答案: **A**

Question #15
What is not processed when running a terraform refresh?
A. State file
B. configuration file
C. Credentials
D. Cloud provider
答案: B

Question #16
What information does the public Terraform Module Registry automatically expose about published modules?

A. Required input variables
B. Optional inputs variables and default values
C. Outputs
D. All of the above
E. None of the above
答案：D

Question #17
If a module uses a local values, you can expose that value with a terraform output.
A. True
B. False
答案：A
解析：
Output values are like function return values.
https://www.terraform.io/docs/language/values/locals.html
https://www.terraform.io/docs/language/values/outputs.html

Question #18
You should store secret data in the same version control repository as your Terraform configuration.
A. True
B. False
答案：B
解析：
https://blog.gruntwork.io/a-comprehensive-guide-to-managing-secrets-in-your-terraform-code-1d586955ace1

Question #19
Which of the following is not a valid string function in Terraform?
A. split
B. join
C. slice
D. chomp
答案：**C**

Question #20
You have provisioned some virtual machines (VMs) on Google Cloud Platform (GCP) using the gcloud command line tool. However, you are standardizing with Terraform and want to manage these VMs using Terraform instead.
What are the two things you must do to achieve this? (Choose two.)
A. Provision new VMs using Terraform with the same VM names
B. Use the terraform import command for the existing VMs
C. Write Terraform configuration for the existing VMs

D. Run the terraform import-gcp command
答案：BC

Question #21
You have recently started a new job at a retailer as an engineer. As part of this new role, you have been tasked with evaluating multiple outages that occurred during peak shopping time during the holiday season. Your investigation found that the team is manually deploying new compute instances and configuring each compute instance manually. This has led to inconsistent configuration between each compute instance.
How would you solve this using infrastructure as code?
A. Implement a ticketing workflow that makes engineers submit a ticket before manually provisioning and configuring a resource
B. Implement a checklist that engineers can follow when configuring compute instances
C. Replace the compute instance type with a larger version to reduce the number of required deployments
D. Implement a provisioning pipeline that deploys infrastructure configurations committed to your version control system following code
reviews
答案：D

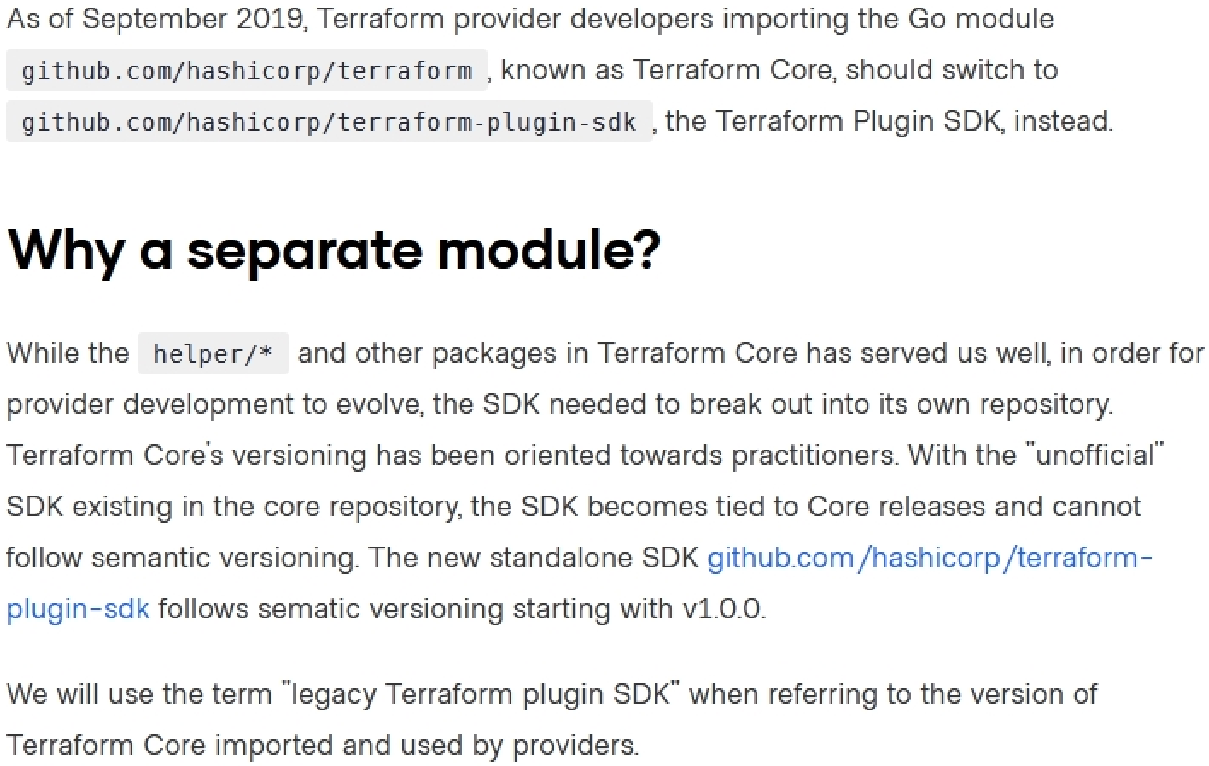
Question #22
terraform init initializes a sample main.tf file in the current directory.
A. True
B. False
答案：B

Question #23
Which two steps are required to provision new infrastructure in the Terraform workflow? (Choose two.)
A. Destroy
B. Apply
C. Import
D. Init
E. Validate
答案：*BD*
解析：
https://www.terraform.io/guides/core-workflow.html

Question #24
Why would you use the terraform taint command?
A. When you want to force Terraform to destroy a resource on the next apply
B. When you want to force Terraform to destroy and recreate a resource on the next apply
C. When you want Terraform to ignore a resource on the next apply
D. When you want Terraform to destroy all the infrastructure in your workspace

答案：*B*
解析：
The terraform taint command manually marks a Terraform-managed resource as tainted, forcing it to be destroyed and recreated on the next apply.
https://www.terraform.io/docs/cli/commands/taint.html

Question #25
Terraform requires the Go runtime as a prerequisite for installation.
A. True
B. False
答案：*B*
解析：
https://www.terraform.io/docs/extend/guides/v1-upgrade-guide.html



As of September 2019, Terraform provider developers importing the Go module `github.com/hashicorp/terraform` , known as Terraform Core, should switch to `github.com/hashicorp/terraform-plugin-sdk` , the Terraform Plugin SDK, instead.

Why a separate module?

While the `helper/*` and other packages in Terraform Core has served us well, in order for provider development to evolve, the SDK needed to break out into its own repository. Terraform Core's versioning has been oriented towards practitioners. With the "unofficial" SDK existing in the core repository, the SDK becomes tied to Core releases and cannot follow semantic versioning. The new standalone SDK github.com/hashicorp/terraform-plugin-sdk follows sematic versioning starting with v1.0.0.

We will use the term "legacy Terraform plugin SDK" when referring to the version of Terraform Core imported and used by providers.

Question #26
When should you use the force-unlock command?
A. You see a status message that you cannot acquire the lock
B. You have a high priority change
C. Automatic unlocking failed
D. You apply failed due to a state lock
答案：*C*

解析：
Manually unlock the state for the defined configuration.
https://www.terraform.io/docs/cli/commands/force-unlock.html

Question #27
Terraform can import modules from a number of sources `" which of the following is not a valid source?
A. FTP server
B. GitHub repository
C. Local path
D. Terraform Module Registry
答案：*A*

Question #28
Which of the following is available only in Terraform Enterprise or Cloud workspaces and not in Terraform CLI?
A. Secure variable storage
B. Support for multiple cloud providers
C. Dry runs with terraform plan
D. Using the workspace as a data source
答案：*A*

Question #29
terraform validate validates the syntax of Terraform files.
A. True
B. False
答案：A
解析：
The terraform validate command validates the syntax and arguments of the Terraform configuration files.
https://www.terraform.io/docs/cli/code/index.html

Question #30
You have used Terraform to create an ephemeral development environment in the cloud and are now ready to destroy all the infrastructure described by your
Terraform configuration. To be safe, you would like to first see all the infrastructure that will be deleted by Terraform.
Which command should you use to show all of the resources that will be deleted? (Choose two.)
A. Run terraform plan -destroy.
B. This is not possible. You can only show resources that will be created.
C. Run terraform state rm *.
D. Run terraform destroy and it will first output all the resources that will be deleted before prompting for approval.
答案：**A**D

Question #31
Which of the following is the correct way to pass the value in the variable num_servers into a module with the input servers?
A. servers = num_servers
B. servers = variable.num_servers
C. servers = var(num_servers)
D. servers = var.num_servers
答案：D

Question #32
A Terraform provisioner must be nested inside a resource configuration block.
A. True
B. False
答案：A
解析：
Most provisioners require access to the remote resource via SSH or WinRM, and expect a nested connection block with details about how to connect.
https://www.terraform.io/docs/language/resources/provisioners/connection.html

Question #33
Terraform can run on Windows or Linux, but it requires a Server version of the Windows operating system.
A. True
B. False
答案：B

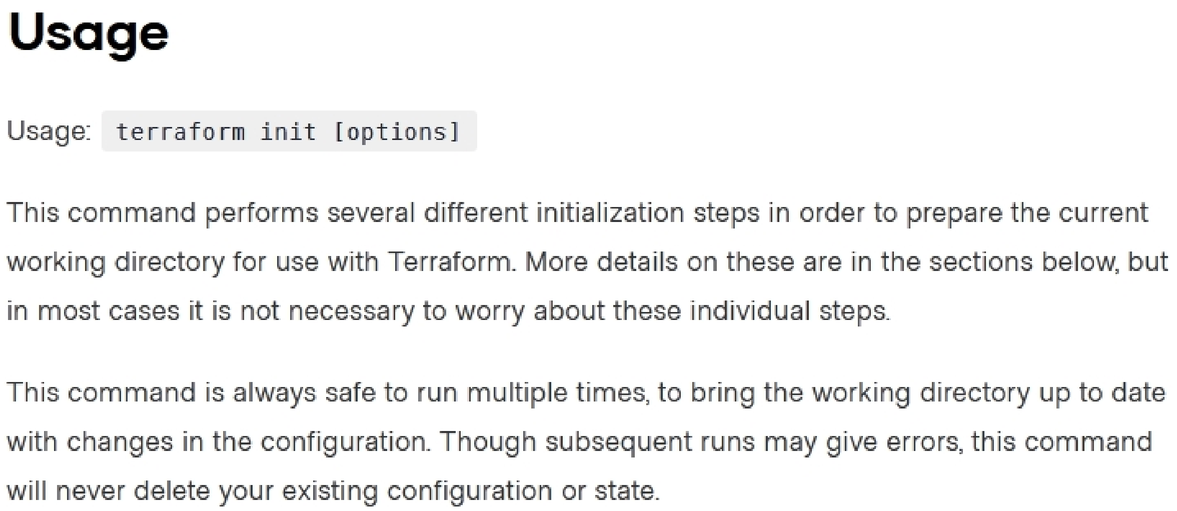
Question #34
What does the default "local" Terraform backend store?
A. tfplan files
B. Terraform binary
C. Provider plugins
D. State file
答案：D
解析：
The local backend stores state on the local filesystem, locks that state using system APIs, and performs operations locally.
https://www.terraform.io/docs/language/settings/backends/local.html

Question #35
You have multiple team members collaborating on infrastructure as code (IaC) using Terraform, and want to apply formatting standards for readability.

How can you format Terraform HCL (HashiCorp configuration Language) code according to standard Terraform style convention?
A. Run the terraform fmt command during the code linting phase of your CI/CD process
B. Designate one person in each team to review and format everyone's code
C. Manually apply two spaces indentation and align equal sign "=" characters in every Terraform file (*.tf)
D. Write a shell script to transform Terraform files using tools such as AWK, Python, and sed
答案: **A**

Question #36
What value does the Terraform Cloud/Terraform Enterprise private module registry provide over the public Terraform Module Registry?
A. The ability to share modules with public Terraform users and members of Terraform Enterprise Organizations
B. The ability to tag modules by version or release
C. The ability to restrict modules to members of Terraform Cloud or Enterprise organizations
D. The ability to share modules publicly with any user of Terraform
答案: **C**

Question #37
Which task does terraform init not perform?
A. Sources all providers present in the configuration and ensures they are downloaded and available locally
B. Connects to the backend
C. Sources any modules and copies the configuration locally
D. Validates all required variables are present
答案: D
解析:
https://www.terraform.io/docs/cli/commands/init.html



Usage

Usage: `terraform init [options]`

This command performs several different initialization steps in order to prepare the current working directory for use with Terraform. More details on these are in the sections below, but in most cases it is not necessary to worry about these individual steps.

This command is always safe to run multiple times, to bring the working directory up to date with changes in the configuration. Though subsequent runs may give errors, this command will never delete your existing configuration or state.

Question #38

You have declared a variable called var.list which is a list of objects that all have an attribute id.
Which options will produce a list of the IDs? (Choose two.)
A. { for o in var.list : o => o.id }
B. var.list[*].id
C. [var.list[*].id]
D. [for o in var.list : o.id]
答案：BD

Question #39

Which argument(s) is (are) required when declaring a Terraform variable?
A. type
B. default
C. description
D. All of the above
E. None of the above
答案：E

Question #40

When using a module block to reference a module stored on the public Terraform Module Registry such as:

```
Module “consul”{
        Source = “hashicorp/consul/aws”
}
```

How do you specify version 1.0.0?
A. Modules stored on the public Terraform Module Registry do not support versioning
B. Append ?ref=v1.0.0 argument to the source path

C. Add version = "1.0.0" attribute to module block
D. Nothing ג€" modules stored on the public Terraform Module Registry always default to version 1.0.0
答案：C

Question #41
What features does the hosted service Terraform Cloud provide? (Choose two.)
A. Automated infrastructure deployment visualization
B. Automatic backups
C. Remote state storage
D. A web-based user interface (UI)
答案：CD

Question #42
Where does the Terraform local backend store its state?
A. In the /tmp directory
B. In the terraform file
C. In the terraform.tfstate file
D. In the user's terraform.state file
答案：C
解析：
The local backend stores state on the local filesystem, locks that state using system APIs, and performs operations locally.
https://www.terraform.io/docs/language/settings/backends/local.html
Community vote distribution

Question #43
Which option can not be used to keep secrets out of Terraform configuration files?
A. A Terraform provider
B. Environment variables
C. A -var flag
D. secure string
答案：*D*

Question #44
What is one disadvantage of using dynamic blocks in Terraform?
A. They cannot be used to loop through a list of values
B. Dynamic blocks can construct repeatable nested blocks
C. They make configuration harder to read and understand
D. Terraform will run more slowly
答案：***C***

Question #45

Only the user that generated a plan may apply it.

A. True

B. False

答案：*B*

Question #46

Examine the following Terraform configuration, which uses the data source for an AWS AMI.

What value should you enter for the ami argument in the AWS instance resource?

```
Data “aws_ami” “ubuntu” {
          …
}
Resource “aws_instance” “web”{
          Ami = _____________
          Instance_type = “t2.micro”
          Tags ={
                    Name = “helloWorld”
          }
}
```

A. aws_ami.ubuntu

B. data.aws_ami.ubuntu

C. data.aws_ami.ubuntu.id

D. aws_ami.ubuntu.id

答案：*C*

解析：resource "aws_instance" "web" {

ami = data.aws_ami.ubuntu.id

https://registry.terraform.io/providers/hashicorp/aws/latest/docs/resources/instance

Question #48

You have never used Terraform before and would like to test it out using a shared team account for a cloud provider. The shared team account already contains 15 virtual machines (VM). You develop a Terraform configuration containing one VM, perform terraform apply, and see that your VM was created successfully.

What should you do to delete the newly-created VM with Terraform?

A. The Terraform state file contains all 16 VMs in the team account. Execute terraform destroy and select the newly-created VM.

B. The Terraform state file only contains the one new VM. Execute terraform destroy.

C. Delete the Terraform state file and execute Terraform apply.

D. Delete the VM using the cloud provider console and terraform apply to apply the changes to the Terraform state file.

答案：*B*

Question #49

What is the name assigned by Terraform to reference this resource?

```
Resource “azurerm_resource_group” “dev” {
        Name = “test”
        Location = “westus”
}
```

A. dev
B. azurerm_resource_group
C. azurerm
D. test
答案：*A*

Question #50
Setting the TF_LOG environment variable to DEBUG causes debug messages to be logged into syslog.
A. True
B. False
答案：*B*

Question #51
Where in your Terraform configuration do you specify a state backend?
A. The terraform block
B. The resource block
C. The provider block
D. The datasource block
答案：*A*
解析：
Backends are configured with a nested backend block within the top-level terraform block.
https://www.terraform.io/docs/language/settings/backends/configuration.html

Question #52
In Terraform 0.13 and above, outside of the required_providers block, Terraform configurations always refer to providers by their local names.
A. True
B. False
答案：*A*
解析：
Outside of the required_providers block, Terraform configurations always refer to providers by their local names.
https://www.terraform.io/docs/language/providers/requirements.html

Question #53
What command should you run to display all workspaces for the current configuration?
A. terraform workspace
B. terraform workspace show
C. terraform workspace list

D. terraform show workspace
答案：*C*
解析：
terraform workspace list
The command will list all existing workspaces.
https://www.terraform.io/docs/cli/commands/workspace/list.html

Question #54
Terraform providers are always installed from the Internet.
A. True
B. False
答案：*B*
解析：
Terraform configurations must declare which providers they require, so that Terraform can install and use them.
https://www.terraform.io/docs/language/providers/configuration.html

Question #55
Which of these is the best practice to protect sensitive values in state files?
A. Blockchain
B. Secure Sockets Layer (SSL)
C. Enhanced remote backends
D. Signed Terraform providers
答案：*C*
解析：
Use of remote backends and especially the availability of Terraform Cloud, there are now a variety of backends that will encrypt state at rest
and will not store the state in cleartext on machines running.
https://www.terraform.io/docs/extend/best-practices/sensitive-state.html

Question #56
When does terraform apply reflect changes in the cloud environment?
A. Immediately
B. However long it takes the resource provider to fulfill the request
C. After updating the state file
D. Based on the value provided to the -refresh command line argument
E. None of the above
答案：*B*

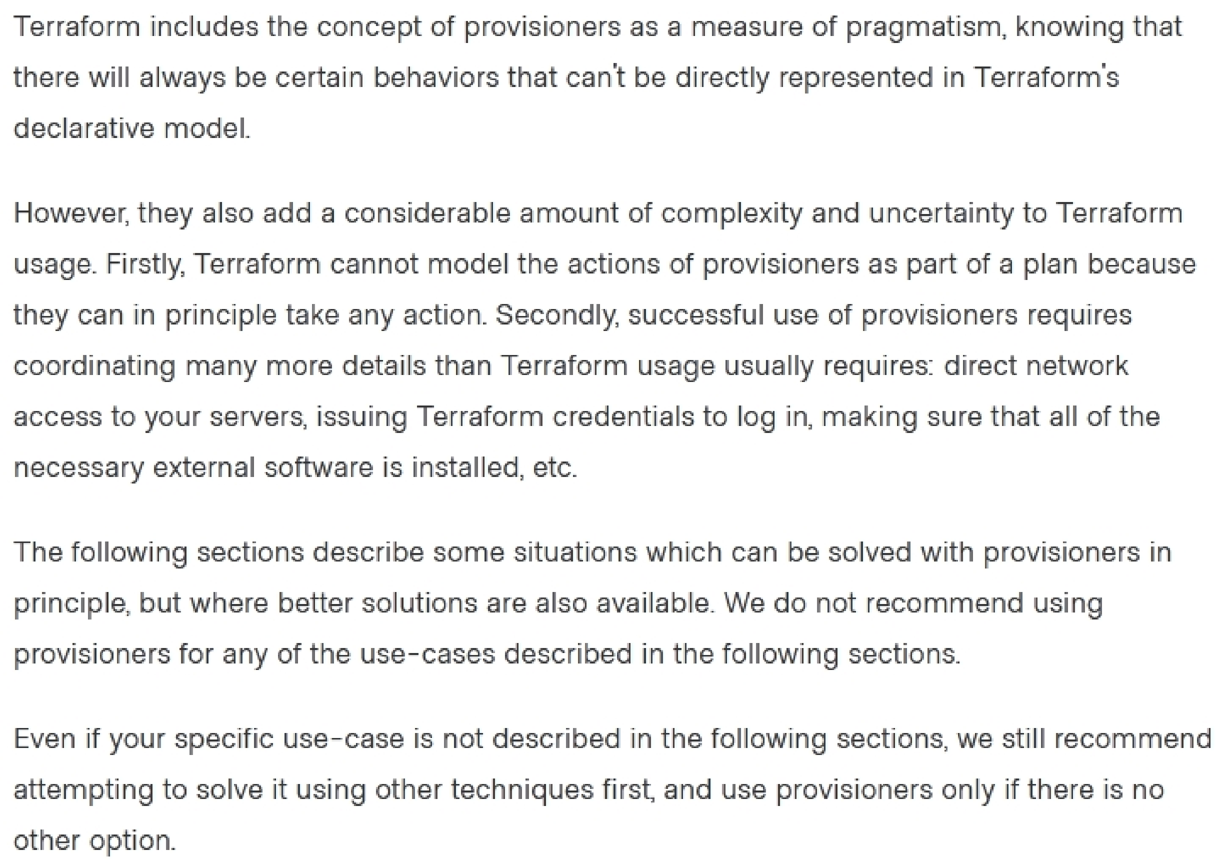
Question #57
How would you reference the "name" value of the second instance of this fictitious resource?

```
Resource “aws_instance” “web”{
        Count = 2
        Name = “terraform-${count.index}”
}
```

A. element(aws_instance.web, 2)
B. aws_instance.web[1].name
C. aws_instance.web[1]
D. aws_instance.web[2].name
E. aws_instance.web.*.name
答案：*B*

Question #58
A Terraform provider is not responsible for:
A. Understanding API interactions with some service
B. Provisioning infrastructure in multiple clouds
C. Exposing resources and data sources based on an API
D. Managing actions to take based on resource differences
答案：*B*

Question #59
Terraform provisioners can be added to any resource block.
A. True
B. False
答案：*A*
解析：
https://www.terraform.io/docs/language/resources/provisioners/syntax.html



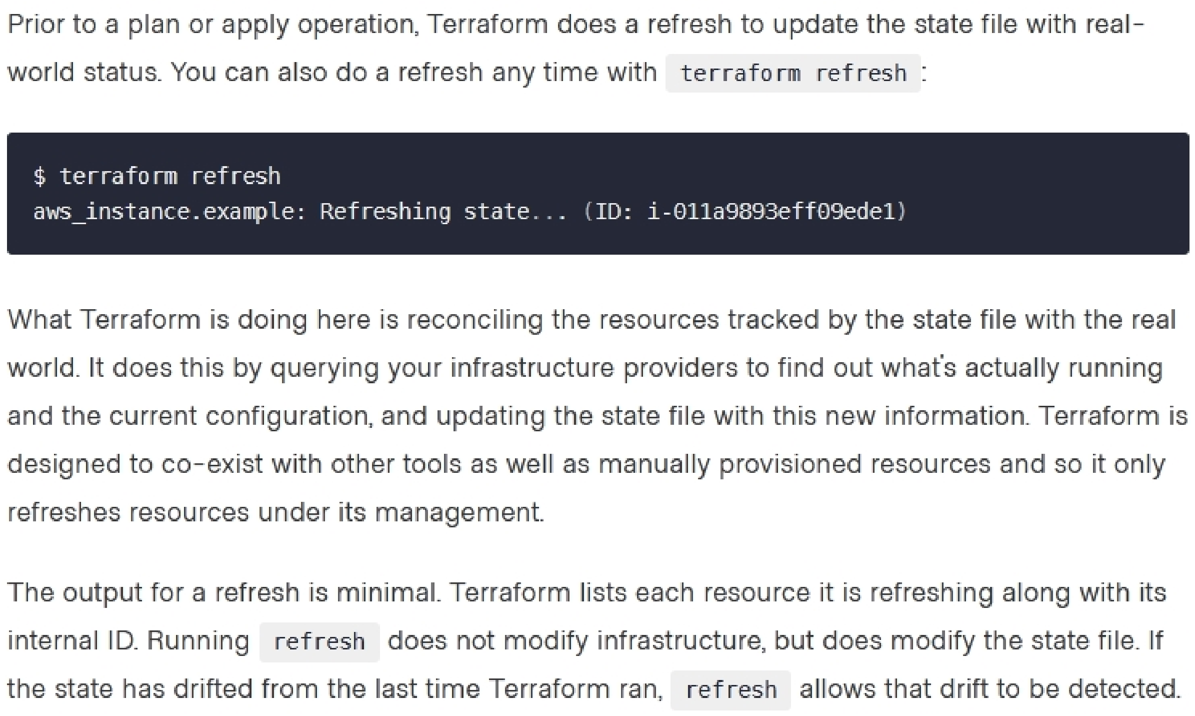
Terraform includes the concept of provisioners as a measure of pragmatism, knowing that there will always be certain behaviors that can't be directly represented in Terraform's declarative model.

However, they also add a considerable amount of complexity and uncertainty to Terraform usage. Firstly, Terraform cannot model the actions of provisioners as part of a plan because they can in principle take any action. Secondly, successful use of provisioners requires coordinating many more details than Terraform usage usually requires: direct network access to your servers, issuing Terraform credentials to log in, making sure that all of the necessary external software is installed, etc.

The following sections describe some situations which can be solved with provisioners in principle, but where better solutions are also available. We do not recommend using provisioners for any of the use-cases described in the following sections.

Even if your specific use-case is not described in the following sections, we still recommend attempting to solve it using other techniques first, and use provisioners only if there is no other option.

Question #60
What is terraform refresh intended to detect?
A. Terraform configuration code changes
B. Empty state files
C. State file drift
D. Corrupt state files
答案：*C*
解析：
https://www.hashicorp.com/blog/detecting-and-managing-drift-with-terraform



Prior to a plan or apply operation, Terraform does a refresh to update the state file with real-world status. You can also do a refresh any time with `terraform refresh`:

```
$ terraform refresh
aws_instance.example: Refreshing state... (ID: i-011a9893eff09ede1)
```

What Terraform is doing here is reconciling the resources tracked by the state file with the real world. It does this by querying your infrastructure providers to find out what's actually running and the current configuration, and updating the state file with this new information. Terraform is designed to co-exist with other tools as well as manually provisioned resources and so it only refreshes resources under its management.

The output for a refresh is minimal. Terraform lists each resource it is refreshing along with its internal ID. Running `refresh` does not modify infrastructure, but does modify the state file. If the state has drifted from the last time Terraform ran, `refresh` allows that drift to be detected.

Question #63

A Terraform local value can reference other Terraform local values.

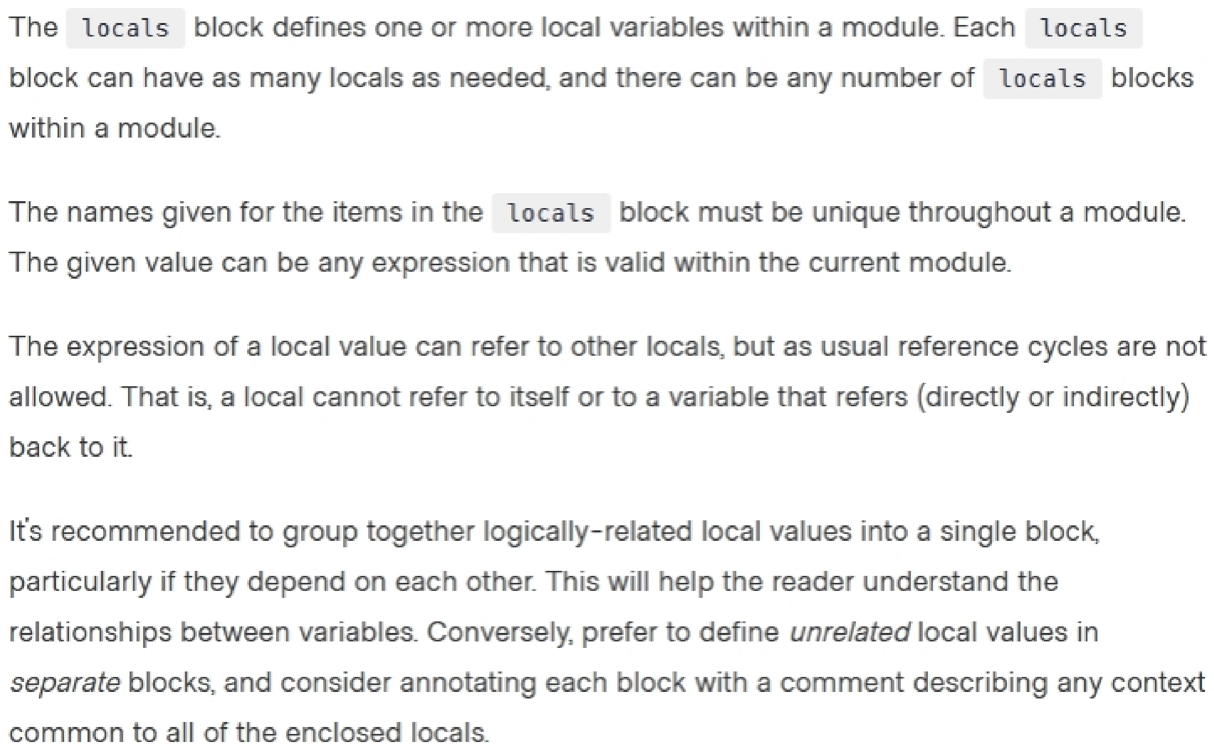
A. True

B. False

答案: *A*

解析:

https://www.terraform.io/docs/configuration-0-11/locals.html



The `locals` block defines one or more local variables within a module. Each `locals` block can have as many locals as needed, and there can be any number of `locals` blocks within a module.

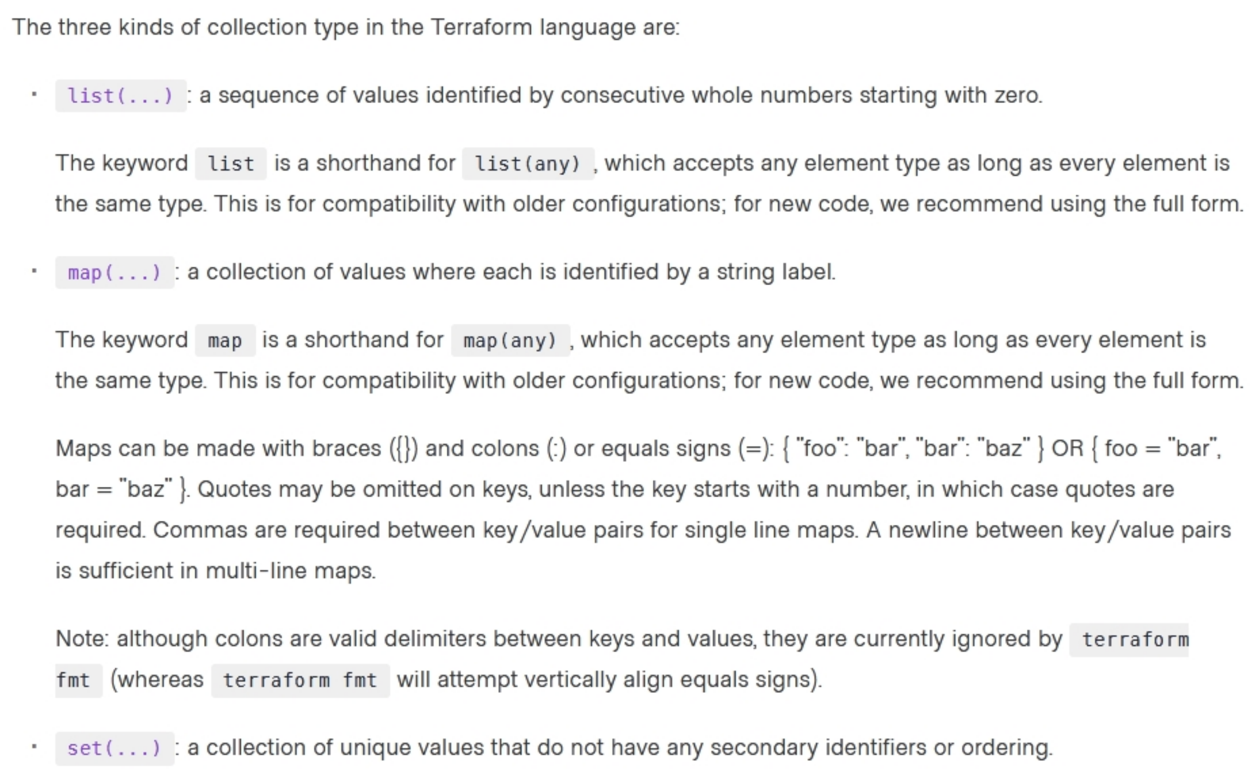
The names given for the items in the `locals` block must be unique throughout a module. The given value can be any expression that is valid within the current module.

The expression of a local value can refer to other locals, but as usual reference cycles are not allowed. That is, a local cannot refer to itself or to a variable that refers (directly or indirectly) back to it.

It's recommended to group together logically-related local values into a single block, particularly if they depend on each other. This will help the reader understand the relationships between variables. Conversely, prefer to define *unrelated* local values in *separate* blocks, and consider annotating each block with a comment describing any context common to all of the enclosed locals.

Question #64

Which of the following is not a valid Terraform collection type?
A. list
B. map
C. tree
D. set
答案：*C*
解析：
https://www.terraform.io/docs/language/expressions/type-constraints.html



The three kinds of collection type in the Terraform language are:

- `list(...)` : a sequence of values identified by consecutive whole numbers starting with zero.

  The keyword `list` is a shorthand for `list(any)` , which accepts any element type as long as every element is the same type. This is for compatibility with older configurations; for new code, we recommend using the full form.

- `map(...)` : a collection of values where each is identified by a string label.

  The keyword `map` is a shorthand for `map(any)` , which accepts any element type as long as every element is the same type. This is for compatibility with older configurations; for new code, we recommend using the full form.

  Maps can be made with braces ({}) and colons (:) or equals signs (=): { "foo": "bar", "bar": "baz" } OR { foo = "bar", bar = "baz" }. Quotes may be omitted on keys, unless the key starts with a number, in which case quotes are required. Commas are required between key/value pairs for single line maps. A newline between key/value pairs is sufficient in multi-line maps.

  Note: although colons are valid delimiters between keys and values, they are currently ignored by `terraform fmt` (whereas `terraform fmt` will attempt vertically align equals signs).

- `set(...)` : a collection of unique values that do not have any secondary identifiers or ordering.

Question #65
When running the command terraform taint against a managed resource you want to force recreation upon, Terraform will immediately destroy and recreate the resource.
A. True
B. False
答案：*B*
解析：
https://www.devopsschool.com/blog/terraform-taint-and-untaint-explained-with-example-programs-and-tutorials/

Question #66
All standard backend types support state storage, locking, and remote operations like plan, apply and destroy.
A. True
B. False
答案：*B*

Question #67
How can terraform plan aid in the development process?
A. Validates your expectations against the execution plan without permanently modifying state
B. Initializes your working directory containing your Terraform configuration files
C. Formats your Terraform configuration files

D. Reconciles Terraform's state against deployed resources and permanently modifies state using the current status of deployed resources

答案：*A*

解析：

https://github.com/hashicorp/terraform/issues/19235

Question #68

You would like to reuse the same Terraform configuration for your development and production environments with a different state file for each.

Which command would you use?

A. terraform import

B. terraform workspace

C. terraform state

D. terraform init

答案：*B*

Question #69

What is the name assigned by Terraform to reference this resource?

```
Mainresource “google_compute_instance” “main”{
        Name = “test”
}
```

A. compute_instance

B. main

C. google

D. teat

答案：*B*

Question #70

You're building a CI/CD (continuous integration/ continuous delivery) pipeline and need to inject sensitive variables into your Terraform run.

How can you do this safely?

A. Pass variables to Terraform with a ג€"var flag

B. Copy the sensitive variables into your Terraform code

C. Store the sensitive variables in a secure_vars.tf file

D. Store the sensitive variables as plain text in a source code repository

答案：***A***

Question #71

Your security team scanned some Terraform workspaces and found secrets stored in a plaintext in state files.

How can you protect sensitive data stored in Terraform state files?

A. Delete the state file every time you run Terraform

B. Store the state in an encrypted backend

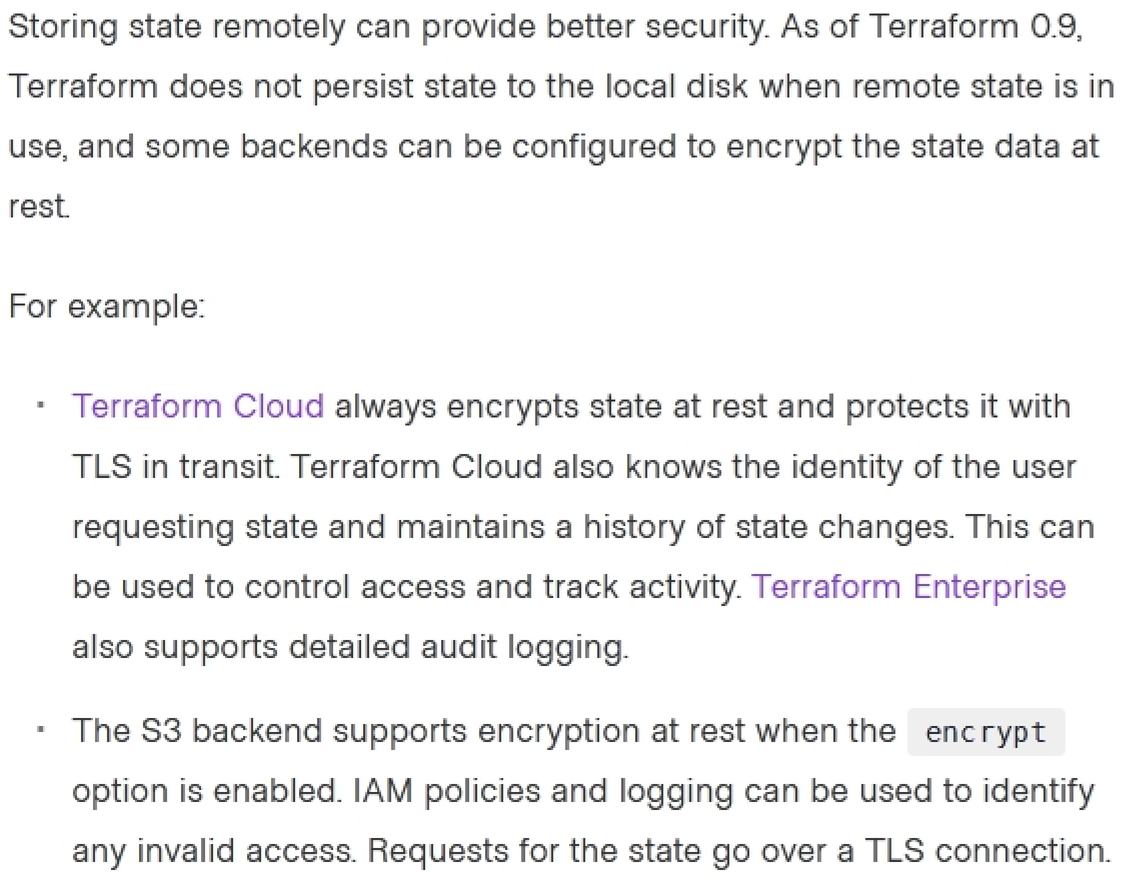
C. Edit your state file to scrub out the sensitive data

D. Always store your secrets in a secrets.tfvars file.

答案：*B*

解析：

https://www.terraform.io/docs/language/state/sensitive-data.html



Storing state remotely can provide better security. As of Terraform 0.9, Terraform does not persist state to the local disk when remote state is in use, and some backends can be configured to encrypt the state data at rest.

For example:

- Terraform Cloud always encrypts state at rest and protects it with TLS in transit. Terraform Cloud also knows the identity of the user requesting state and maintains a history of state changes. This can be used to control access and track activity. Terraform Enterprise also supports detailed audit logging.
- The S3 backend supports encryption at rest when the `encrypt` option is enabled. IAM policies and logging can be used to identify any invalid access. Requests for the state go over a TLS connection.

Question #72

In contrast to Terraform Open Source, when working with Terraform Enterprise and Cloud Workspaces, conceptually you could think about them as completely separate working directories.

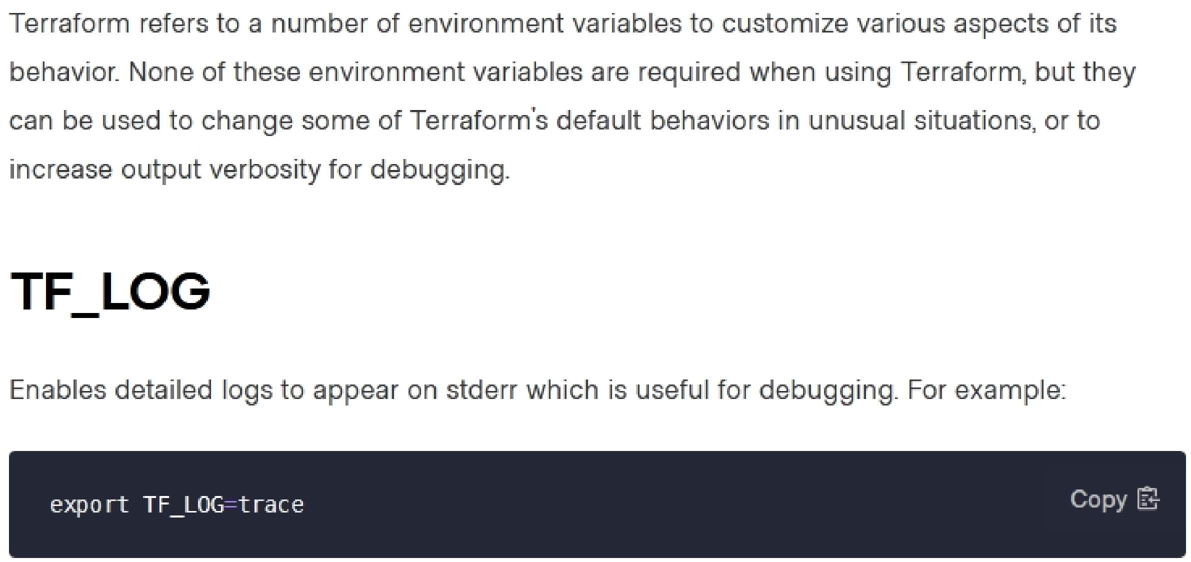
A. True

B. False

答案：*A*

Question #73

You want to know from which paths Terraform is loading providers referenced in your Terraform configuration (*.tf files). You need to enable debug messages to find this out.
Which of the following would achieve this?
A. Set the environment variable TF_LOG=TRACE
B. Set verbose logging for each provider in your Terraform configuration
C. Set the environment variable TF_VAR_log=TRACE
D. Set the environment variable TF_LOG_PATH
答案：*A*
解析：
https://www.terraform.io/docs/cli/config/environment-variables.html



Terraform refers to a number of environment variables to customize various aspects of its behavior. None of these environment variables are required when using Terraform, but they can be used to change some of Terraform's default behaviors in unusual situations, or to increase output verbosity for debugging.

TF_LOG

Enables detailed logs to appear on stderr which is useful for debugging. For example:

```
export TF_LOG=trace
```

Question #74

How is terraform import run?
A. As a part of terraform init
B. As a part of terraform plan
C. As a part of terraform refresh
D. By an explicit call
E. All of the above
答案：*D*

Question #75

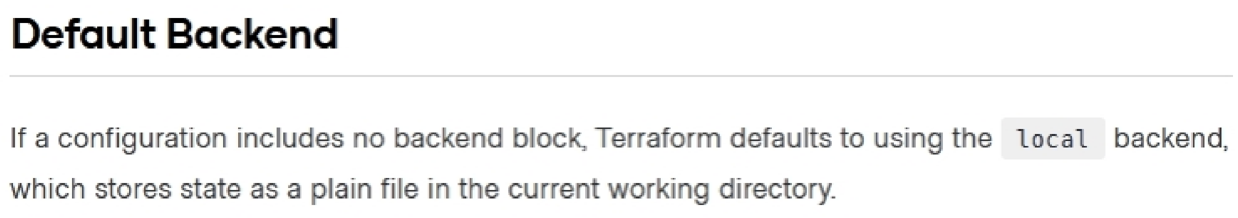
You have a simple Terraform configuration containing one virtual machine (VM) in a cloud provider. You run terraform apply and the VM is created successfully.
What will happen if you delete the VM using the cloud provider console, and run terraform apply again without changing any Terraform code?
A. Terraform will remove the VM from state file
B. Terraform will report an error
C. Terraform will not make any changes

D. Terraform will recreate the VM
答案：*D*

Question #76
Which of these options is the most secure place to store secrets foe connecting to a Terraform remote backend?
A. defined in Environment variables
B. Inside the backend block within the Terraform configuration
C. defined in a connection configuration outside of Terraform
D. None of above
答案：*A*

Question #77
Your DevOps team is currently using the local backend for your Terraform configuration. You would like to move to a remote backend to begin storing the state file in a central location.
Which of the following backends would not work?
A. Amazon S3
B. Artifactory
C. Git
D. Terraform Cloud
答案：***C***

Question #78
Which backend does the Terraform CLI use by default?
A. Terraform Cloud
B. Consul
C. Remote
D. Local
答案：*D*
解析：
https://www.terraform.io/docs/language/settings/backends/configuration.html



Default Backend

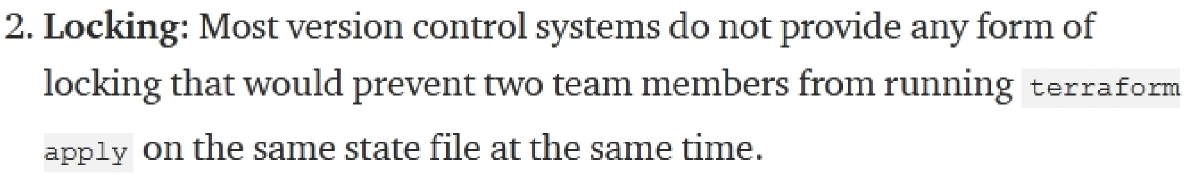
If a configuration includes no backend block, Terraform defaults to using the `local` backend, which stores state as a plain file in the current working directory.

Question #79

When you initialize Terraform, where does it cache modules from the public Terraform Module Registry?
A. On disk in the /tmp directory
B. In memory
C. On disk in the .terraform sub-directory
D. They are not cached
答案：*C*
解析：
https://www.terraform.io/docs/language/modules/sources.html

Question #80
You write a new Terraform configuration and immediately run terraform apply in the CLI using the local backend.
Why will the apply fail?
A. Terraform needs you to format your code according to best practices first
B. Terraform needs to install the necessary plugins first
C. The Terraform CLI needs you to log into Terraform cloud first
D. Terraform requires you to manually run terraform plan first
答案：*B*

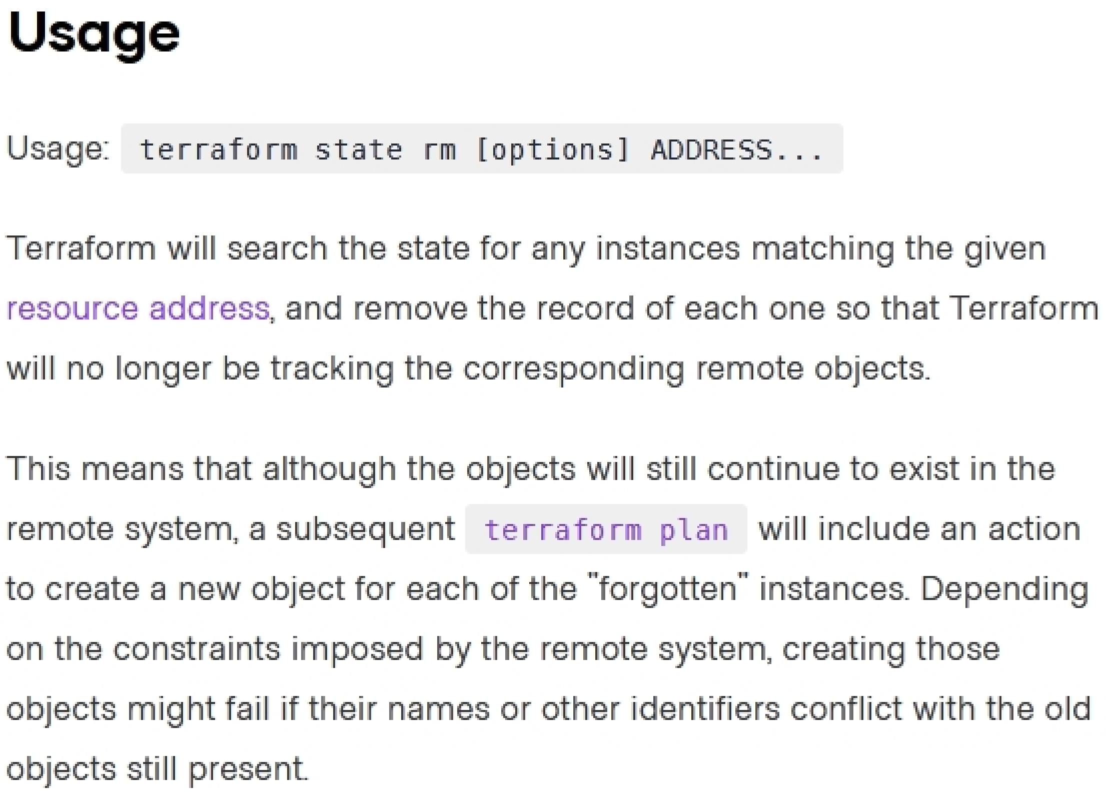
Question #81
What features stops multiple admins from changing the Terraform state at the same time?
A. Version control
B. Backend types
C. Provider constraints
D. State locking
答案：*D*
解析：
https://blog.gruntwork.io/how-to-manage-terraform-state-28f5697e68fa



2. **Locking:** Most version control systems do not provide any form of locking that would prevent two team members from running `terraform apply` on the same state file at the same time.

Question #82
A fellow developer on your team is asking for some help in refactoring their Terraform code. As part of their application's architecture, they are going to tear down an existing deployment managed by Terraform and deploy new. However, there is a server resource named aws_instance.ubuntu[1] they would like to keep to perform some additional analysis.
What command should be used to tell Terraform to no longer manage the resource?

A. terraform apply rm aws_instance.ubuntu[1]
B. terraform state rm aws_instance.ubuntu[1]
C. terraform plan rm aws_instance.ubuntu[1]
D. terraform delete aws_instance.ubuntu[1]
答案：*B*
解析：
https://www.terraform.io/docs/cli/commands/state/rm.html



Usage

Usage: `terraform state rm [options] ADDRESS...`

Terraform will search the state for any instances matching the given resource address, and remove the record of each one so that Terraform will no longer be tracking the corresponding remote objects.

This means that although the objects will still continue to exist in the remote system, a subsequent `terraform plan` will include an action to create a new object for each of the "forgotten" instances. Depending on the constraints imposed by the remote system, creating those objects might fail if their names or other identifiers conflict with the old objects still present.

Question #83
Terraform can only manage resource dependencies if you set them explicitly with the depends_on argument.
A. True
B. False
答案：*B*

Question #84
A terraform apply can not __________ infrastructure.
A. change
B. destroy
C. provision
D. import
答案：*D*

Question #85

You need to constrain the GitHub provider to version 2.1 or greater.
Which of the following should you put into the Terraform 0.12 configuration's provider block?
A. version >= 2.1
B. version ~> 2.1
C. version = ג€>= 2.1ג€
D. version = ג€<= 2.1ג€
答案: *D*

Question #86

You just scaled your VM infrastructure and realized you set the count variable to the wrong value. You correct the value and save your change.
What do you do next to make your infrastructure match your configuration?
A. Run an apply and confirm the planned changes
B. Inspect your Terraform state because you want to change it
C. Reinitialize because your configuration has changed
D. Inspect all Terraform outputs to make sure they are correct
答案: *A*

Question #87

Terraform provisioners that require authentication can use the ______ block.
A. connection
B. credentials
C. secrets
D. ssh
答案: ***A***

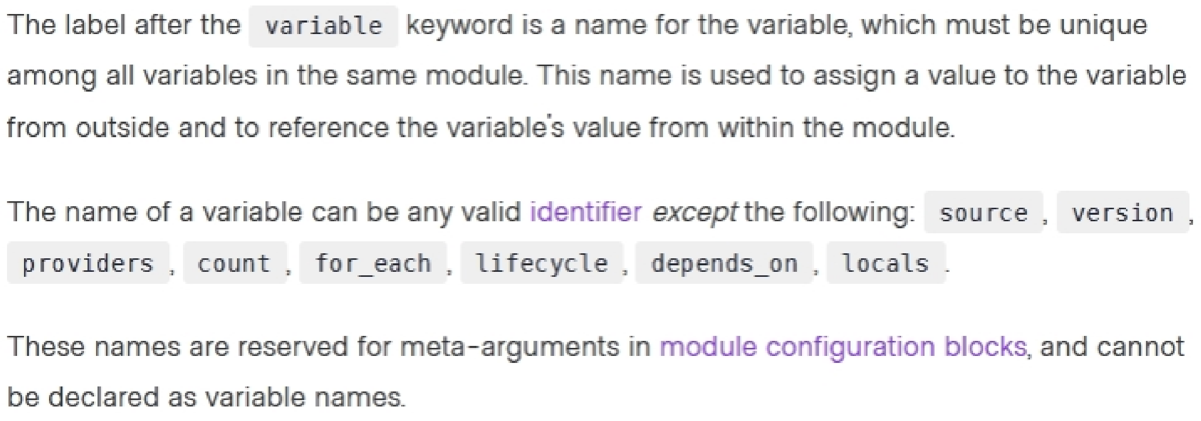
Question #88

Terraform validate reports syntax check errors from which of the following scenarios?
A. Code contains tabs indentation instead of spaces
B. There is missing value for a variable
C. The state files does not match the current infrastructure
D. None of the above
答案: *D*

Question #89

Which of the following is allowed as a Terraform variable name?
A. count
B. name
C. source
D. version

答案：*B*
解析：
https://www.terraform.io/docs/language/values/variables.html

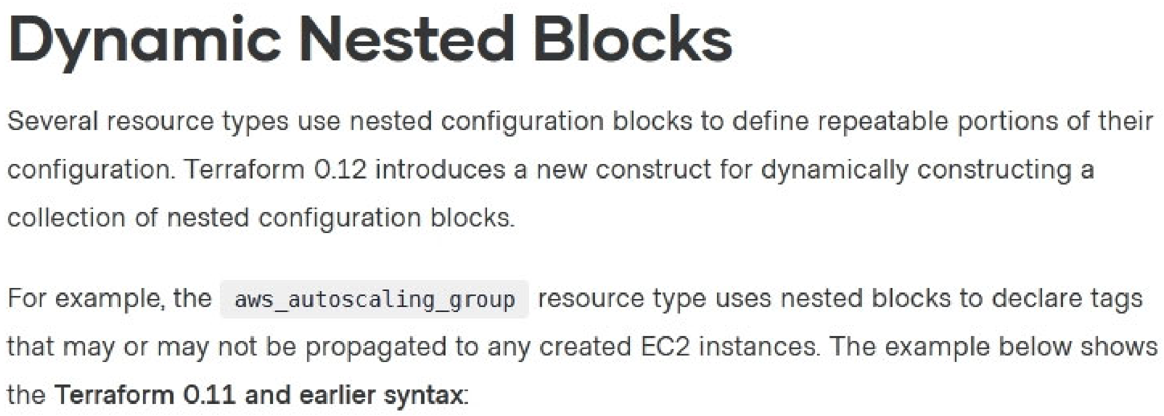


The label after the `variable` keyword is a name for the variable, which must be unique among all variables in the same module. This name is used to assign a value to the variable from outside and to reference the variable's value from within the module.

The name of a variable can be any valid identifier *except* the following: `source`, `version`, `providers`, `count`, `for_each`, `lifecycle`, `depends_on`, `locals`.

These names are reserved for meta-arguments in module configuration blocks, and cannot be declared as variable names.

Question #90
What type of block is used to construct a collection of nested configuration blocks?
A. for_each
B. repeated
C. nesting
D. dynamic
答案：*D*
解析：
https://www.hashicorp.com/blog/hashicorp-terraform-0-12-preview-for-and-for-each



Dynamic Nested Blocks

Several resource types use nested configuration blocks to define repeatable portions of their configuration. Terraform 0.12 introduces a new construct for dynamically constructing a collection of nested configuration blocks.

For example, the `aws_autoscaling_group` resource type uses nested blocks to declare tags that may or may not be propagated to any created EC2 instances. The example below shows the **Terraform 0.11 and earlier syntax**:

Question #91
Module variable assignments are inherited from the parent module and do not need to be explicitly set.
A. True
B. False
答案：*B*
解析：

https://github.com/hashicorp/terraform/issues/15818

Question #92

If writing Terraform code that adheres to the Terraform style conventions, how would you properly indent each nesting level compared to the one above it?

A. With four spaces

B. With a tab

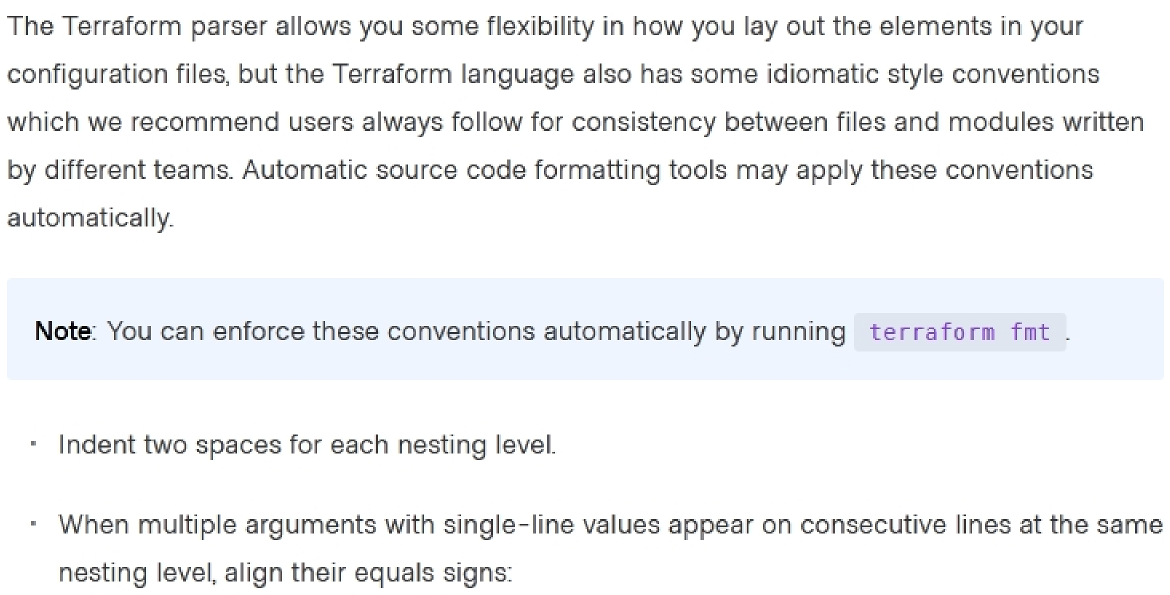
C. With three spaces

D. With two spaces

答案：*D*

解析：

https://www.terraform.io/docs/language/syntax/style.html



The Terraform parser allows you some flexibility in how you lay out the elements in your configuration files, but the Terraform language also has some idiomatic style conventions which we recommend users always follow for consistency between files and modules written by different teams. Automatic source code formatting tools may apply these conventions automatically.

Note: You can enforce these conventions automatically by running `terraform fmt`.

- Indent two spaces for each nesting level.
- When multiple arguments with single-line values appear on consecutive lines at the same nesting level, align their equals signs:

Question #93

Which of the following is not an action performed by terraform init?

A. Create a sample main.tf file

B. Initialize a configured backend

C. Retrieve the source code for all referenced modules

D. Load required provider plugins

答案：*A*

解析：

https://www.terraform.io/docs/cli/init/index.html

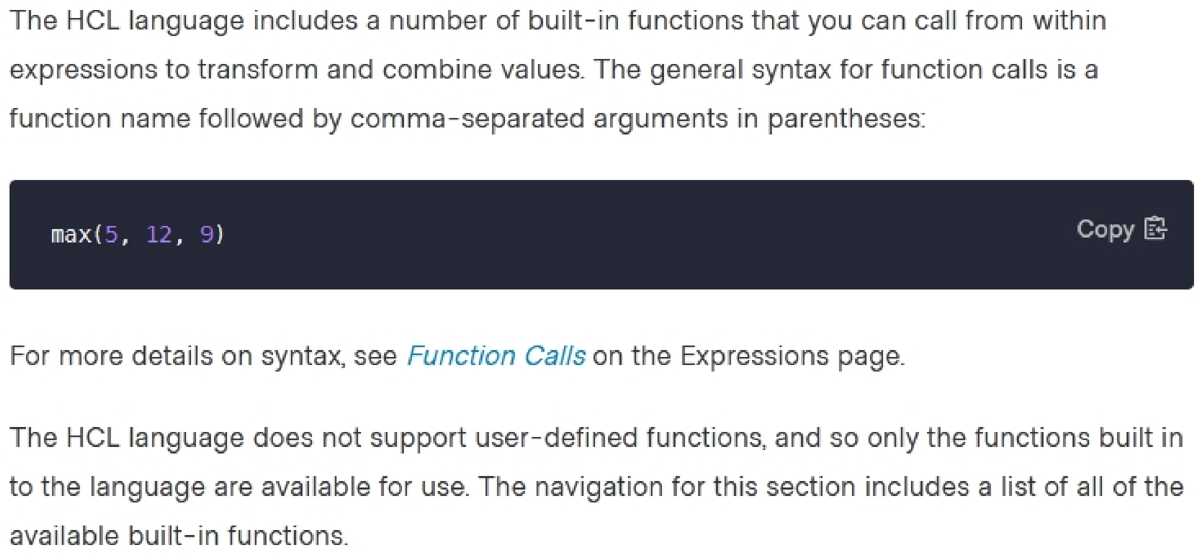
Question #94

HashiCorp configuration Language (HCL) supports user-defined functions.

A. True

B. False

答案：*B*
解析：
https://www.packer.io/docs/templates/hcl_templates/functions



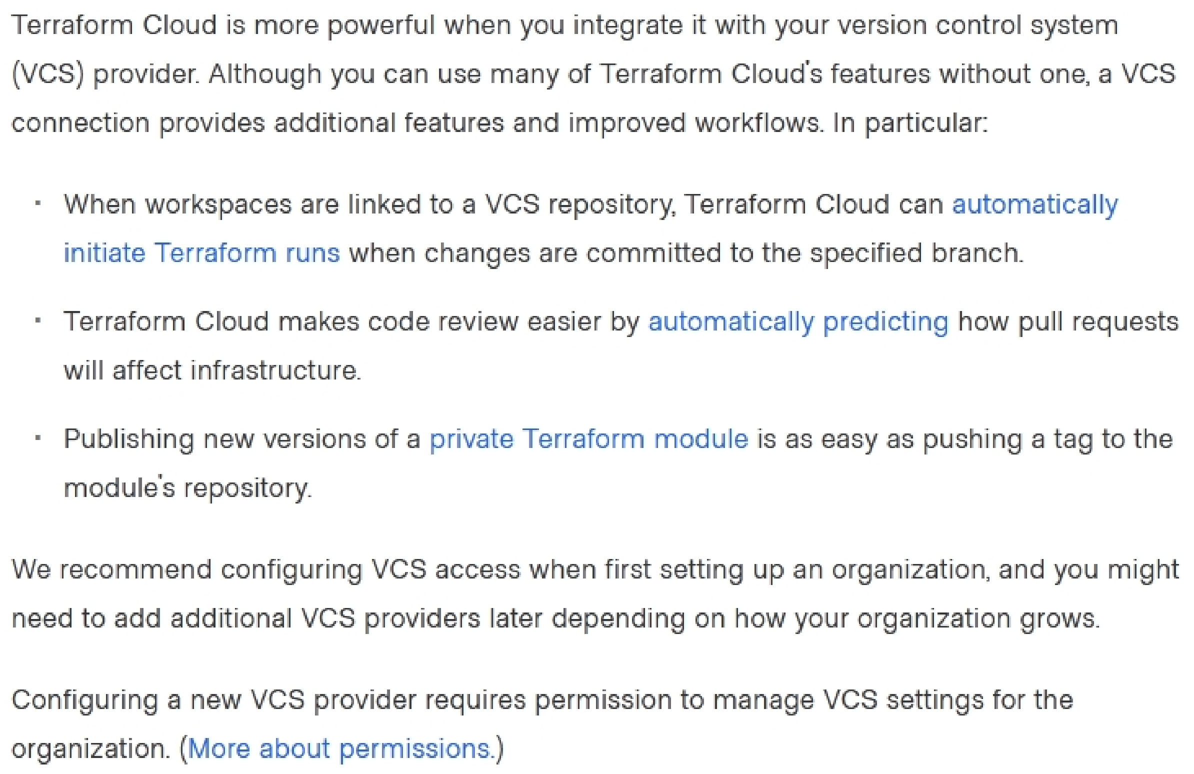
The HCL language includes a number of built-in functions that you can call from within expressions to transform and combine values. The general syntax for function calls is a function name followed by comma-separated arguments in parentheses:

```
max(5, 12, 9)
```

For more details on syntax, see *Function Calls* on the Expressions page.

The HCL language does not support user-defined functions, and so only the functions built in to the language are available for use. The navigation for this section includes a list of all of the available built-in functions.

Question #95
How can you trigger a run in a Terraform Cloud workspace that is connected to a Version Control System (VCS) repository?
A. Only Terraform Cloud organization owners can set workspace variables on VCS connected workspaces
B. Commit a change to the VCS working directory and branch that the Terraform Cloud workspace is connected to
C. Only members of a VCS organization can open a pull request against repositories that are connected to Terraform Cloud workspaces
D. Only Terraform Cloud organization owners can approve plans in VCS connected workspaces
答案：*B*
解析：
https://www.terraform.io/docs/cloud/vcs/index.html



Terraform Cloud is more powerful when you integrate it with your version control system (VCS) provider. Although you can use many of Terraform Cloud's features without one, a VCS connection provides additional features and improved workflows. In particular:

- When workspaces are linked to a VCS repository, Terraform Cloud can automatically initiate Terraform runs when changes are committed to the specified branch.
- Terraform Cloud makes code review easier by automatically predicting how pull requests will affect infrastructure.
- Publishing new versions of a private Terraform module is as easy as pushing a tag to the module's repository.

We recommend configuring VCS access when first setting up an organization, and you might need to add additional VCS providers later depending on how your organization grows.

Configuring a new VCS provider requires permission to manage VCS settings for the organization. (More about permissions.)

Question #96

Terraform and Terraform providers must use the same major version number in a single configuration.

A. True
B. False
答案：*B*
解析：
https://www.terraform.io/docs/language/expressions/version-constraints.html

Question #97

Which statement describes a goal of infrastructure as code?

A. An abstraction from vendor specific APIs
B. Write once, run anywhere
C. A pipeline process to test and deliver software
D. The programmatic configuration of resources
答案：*D*

Question #98

When using Terraform to deploy resources into Azure, which scenarios are true regarding state files? (Choose two.)

A. When a change is made to the resources via the Azure Cloud Console, the changes are recorded in a new state file

B. When a change is made to the resources via the Azure Cloud Console, Terraform will update the state file to reflect them during the next
plan or apply
C. When a change is made to the resources via the Azure Cloud Console, the current state file will not be updated
D. When a change is made to the resources via the Azure Cloud Console, the changes are recorded in the current state file
答案: *BC*

Question #99
You need to deploy resources into two different cloud regions in the same Terraform configuration. To do that, you declare multiple provider configurations as follows:

```
Provider “aws” {
          Region = “us-east-1”
}
Provider “aws”{
          Alias = “west”
          Region = “us-west-2”
}
```

What meta-argument do you need to configure in a resource block to deploy the resource to the `us-west-2` AWS region?
A. alias = west
B. provider = west
C. provider = aws.west
D. alias = aws.west
答案: *C*
解析:
https://github.com/hashicorp/terraform/issues/451

Question #100
You have declared an input variable called environment in your parent module. What must you do to pass the value to a child module in the configuration?
A. Add node_count = var.node_count
B. Declare the variable in a terraform.tfvars file
C. Declare a node_count input variable for child module
D. Nothing, child modules inherit variables of parent module
答案: *C*

Question #101
If a module declares a variable with a default, that variable must also be defined within the module.
A. True

B. False
答案：*B*

Question #102 ?
Which option cannot be used to keep secrets out of Terraform configuration files?
A. Environment Variables
B. Mark the variable as sensitive
C. A Terraform provider
D. A -var flag
答案：*B*

Question #103
Which of the following arguments are required when declaring a Terraform output?
A. sensitive
B. description
C. default
D. value
答案：*D*

Question #104
Your risk management organization requires that new AWS S3 buckets must be private and encrypted at rest. How can Terraform Enterprise automatically and proactively enforce this security control?
A. With a Sentinel policy, which runs before every apply
B. By adding variables to each TFE workspace to ensure these settings are always enabled
C. With an S3 module with proper settings for buckets
D. Auditing cloud storage buckets with a vulnerability scanning tool
答案：***A***

Question #105
Most Terraform providers interact with ____________.
A. API
B. VCS Systems
C. Shell scripts
D. None of the above
答案：*A*

Question #106
terraform validate that your infrastructure matches the Terraform state file.
A. True
B. False
答案：*B*

Question #107
What does terraform import allow you to do?
A. Import a new Terraform module
B. Use a state file to import infrastructure to the cloud
C. Import provisioned infrastructure to your state file
D. Import an existing state file to a new Terraform workspace
答案：*C*

Question #109
How would you reference the Volume IDs associated with the ebs_block_device blocks in this configuration?
A. aws_instance.example.ebs_block_device.[*].volume_id
B. aws_instance.example.ebs_block_device.volume_id
C. aws_instance.example.ebs_block_device[sda2,sda3].volume_id
D. aws_instance.example.ebs_block_device.*.volume_id
答案：*D*

Question #110
What does state locking accomplish?
A. Copies the state file from memory to disk
B. Encrypts any credentials stored within the state file
C. Blocks Terraform commands from modifying the state file
D. Prevents accidental deletion of the state file
答案：***C***

Question #111
You just upgraded the version of a provider in an existing Terraform project. What do you need to do to install the new provider?
A. Run terraform apply -upgrade
B. Run terraform init -upgrade
C. Run terraform refresh
D. Upgrade your version of Terraform
答案：*B*

Question #112
A module can always refer to all variables declared in its parent module.
A. True
B. False
答案：*B*

Question #113
When you use a remote backend that needs authentication, HashiCorp recommends that you:

A. Use partial configuration to load the authentication credentials outside of the Terraform code
B. Push your Terraform configuration to an encrypted git repository
C. Write the authentication credentials in the Terraform configuration files
D. Keep the Terraform configuration files in a secret store
答案: ***A***

Question #114
You have a simple Terraform configuration containing one virtual machine (VM) in a cloud provider. You run terraform apply and the VM is created successfully.
What will happen if you terraform apply again immediately afterwards without changing any Terraform code?
A. Terraform will terminate and recreate the VM
B. Terraform will create another duplicate VM
C. Terraform will apply the VM to the state file
D. Nothing
答案: *D*

Question #115
A junior admin accidentally deleted some of your cloud instances. What does Terraform do when you run terraform apply?
A. Build a completely brand new set of infrastructure
B. Tear down the entire workspace infrastructure and rebuild it
C. Rebuild only the instances that were deleted
D. Stop and generate an error message about the missing instances
答案: ***C***

Question #116
You have created a main.tr Terraform configuration consisting of an application server, a database, and a load balancer. You ran terraform apply
and all resources were created successfully. Now you realize that you do not actually need the load balancer so you run terraform destroy without
any flags What will happen?
A. Terraform will destroy the application server because it is listed first in the code
B. Terraform will prompt you to confirm that you want to destroy all the infrastructure
C. Terraform will destroy the main.tf file
D. Terraform will prompt you to pick which resource you want to destroy
E. Terraform will immediately destroy all the infrastructure
答案: *B*

Question #117
Which type of block fetches or computes information for use elsewhere in a Terraform configuration?
A. provider

B. resource
C. local
D. data
答案：*D*

Question #118
You have just developed a new Terraform configuration for two virtual machines with a cloud provider. You would like to create the infrastructure for the first time.
Which Terraform command should you run first?
A. terraform apply
B. terraform plan
C. terraform show
D. terraform init
答案：*D*

Question #119 ?
All modules published on the official Terraform Module Registry have been verified by HashiCorp.
A. True
B. False
答案：*B*

Question #120 ?
You have to initialize a Terraform backend before it can be configured.
A. True
B. False
答案：*B*
解析：
Community vote distribution
B (52%)
A (48%)

Question #121
Which of the following does terraform apply change after you approve the execution plan? (Choose two.)
A. Cloud infrastructure
B. The .terraform directory
C. The execution plan
D. State file
E. Terraform code
答案：***A**D*

Question #122
A Terraform backend determines how Terraform loads state and stores updates when you execute ___________.
A. apply
B. taint
C. destroy
D. All of the above
E. None of the above
答案: *D*

Question #123
What does Terraform use .terraform.lock.hcl file for?
A. Tracking provider dependencies
B. There is no such file
C. Preventing Terraform runs from occurring
D. Storing references to workspaces which are locked
答案: ***A***

Question #124
You've used Terraform to deploy a virtual machine and a database. You want to replace this virtual machine instance with an identical one without affecting the database. What is the best way to achieve this using Terraform?
A. Use the terraform state rm command to remove the VM from state file
B. Use the terraform taint command targeting the VMs then run terraform plan and terraform apply
C. Use the terraform apply command targeting the VM resources only
D. Delete the Terraform VM resources from your Terraform code then run terraform plan and terraform apply
答案: *B*

Question #125
How do you specify a module's version when publishing it to the public Terraform Module Registry?
A. The module's configuration page on the Terraform Module Registry
B. Terraform Module Registry does not support versioning modules
C. The release tags in the associated repo
D. The module's Terraform code
答案: *C*

Question #126
Terraform plan updates your state file.

A. True
B. False
答案：*B*

Question #127
To check if all code in a Terraform configuration with multiple modules is properly formatted without making changes, what command should be run?
A. terraform fmt -check
B. terraform fmt -write-false
C. terraform fmt ג€"list -recursive
D. terraform fmt -check -recursive
答案：*D*

Question #128
As a member of the operations team, you need to run a script on a virtual machine created by Terraform. Which provision is best to use in your Terraform code?
A. null-exlµ̇
B. local-exec
C. remote-exec
D. file
答案：*B*

Question #129
You are using a networking module in your Terraform configuration with the name label my_network. In your main configuration you have the following code:

```
Output: “net_id” {
        Value = module.my_network.vnet_id
}
```

When you run terraform validate, you get the following error:

```
Error: reference to undeclared output value

On main.tf line 12, in output “net_id”:
12: value = module.my_network.vnet_id
```

What must you do to successfully retrieve this value from your networking module?
A. Define the attribute vnet_id as a variable in the networking module
B. Change the referenced value to module.my_network.outputs.vnet_id
C. Define the attribute vnet_id as an output in the networking module
D. Change the referenced value to my_network.outputs.vnet_id
答案：***C***

Question #130

You are writing a child Terraform module which provisions an AWS instance. You want to make use of the IP address returned in the root configuration. You name the instance resource "main".
Which of these is the correct way to Define the output value using HCL2?

A:

```
Output “instance_ip_addr” {
          Value = “${aws_istance.main.private_ip}”
}
```

B:

```
Output “instance_ip_addr” {
          Return aws_istance.main.private_ip
}
```

答案：*A*

Question #131 ?
How can a ticket-based system slow down infrastructure provisioning and limit the ability to scale? (Choose two.)
A. A full audit trail of the request and fulfillment process is generated
B. A request must be submitted for infrastructure changes
C. As additional resources are required, more tickets are submitted
D. A catalog of approved resources can be accessed from drop down lists in a request form
答案：*BC*

Question #132
Which of the following statements about Terraform modules is not true?
A. Modules must be publicly accessible
B. Modules can be called multiple times
C. Module is a container for one or more resources
D. Modules can call other modules
答案：***A***

Question #133
Which Terraform collection type should you use to store key/value pairs?
A. tuple
B. set
C. ma€
D. list
答案：*C*

Question #134
You have used Terraform to create an ephemeral development environment in the cloud and are now ready to destroy all the infrastructure described by your

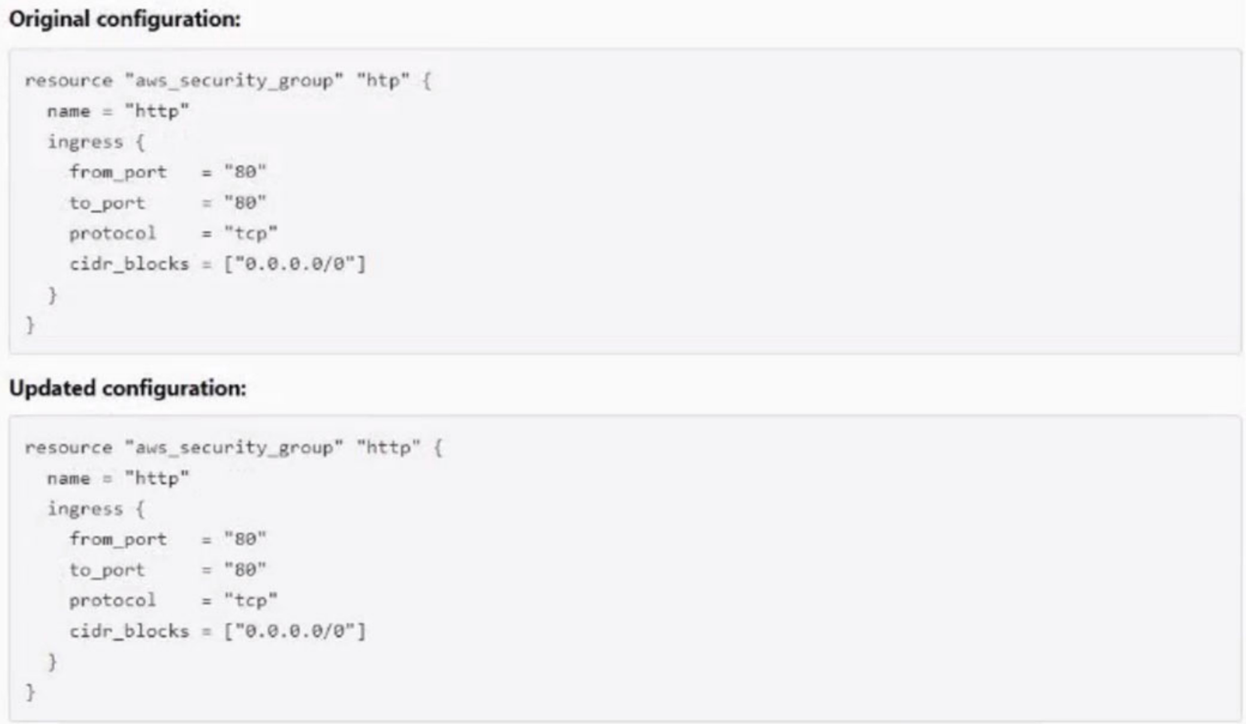
Terraform configuration. To be safe, you would like to first see all the infrastructure that will be deleted by Terraform.
Which command should you use to show all of the resources that will be deleted? (Choose two.)
A. Run terraform plan -destroy
B. Run terraform show -destroy
C. Run terraform destroy and it will first output all the resources that will be deleted before prompting for approval
D. Run terraform show -destroy
答案：*AC*

Question #135
When do you need to explicitly execute terraform refresh?
A. Before every terraform plan
B. Before every terraform apply
C. Before every terraform import
D. None of the above
答案：*D*

Question #136
All Terraform Cloud tiers support team management and governance.
A. True
B. False
答案：*B*

Question #137
What advantage does an operations team that uses infrastructure as code have?
A. The ability to delete infrastructure
B. The ability to update existing infrastructure
C. The ability to reuse best practice configurations and settings
D. The ability to autoscale a group of servers
答案：***C***

Question #138
You have modified your Terraform configuration to fix a typo in the Terraform ID of a resource from aws_security_group.http to aws_security_group.http



Original configuration:

```
resource "aws_security_group" "htp" {
  name = "http"
  ingress {
    from_port   = "80"
    to_port     = "80"
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }
}
```

Updated configuration:

```
resource "aws_security_group" "http" {
  name = "http"
  ingress {
    from_port   = "80"
    to_port     = "80"
    protocol    = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }
}
```

Which of the following commands would you run to update the ID in state without destroying the resource?

A. terraform mv aws_security_group.htp aws_security_group.http

B. terraform apply

C. terraform refresh

答案：***A***

Question #139

You are creating a Terraform configuration which needs to make use of multiple providers, one for AWS and one for Datadog.

Which of the following provider blocks would allow you to do this?

A:

```
Provider{
        “Aws” {
                Profile = var.aws_profile
                Region = var.aws_region
        }
        “datadog” {
                api_key = var.datadog_api_key
                app_key = var.datadog_app_key
        }
}
```

B:

```
Provider “aws{
        Profile = var.aws_profile
        Region = var.aws_region
}
Provider “datadog{
        api_key = var.datadog_api_key
        app_key = var.datadog_app_key
}
```

答案：*B*

Question #140

Terraform variable names are saved in the state file.
A. True
B. False
答案：*B*

Question #141

Terraform Cloud is available only as a paid offering from HashiCorp.
A. True
B. False
答案：*B*

Question #142 ?

Which of the following is not a way to trigger terraform destroy?
A. Using the destroy command with auto-approve
B. Running terraform destroy from the correct directory and then typing "yes" when prompted in the CLI
C. Passing --destroy at the end of a plan request
D. Delete the state file and run terraform apply
答案：*D*

Question #143

Which of the following is not an advantage of using infrastructure as code operations?
A. Self-service infrastructure deployment
B. Troubleshoot via a Linux diff command
C. Public cloud console configuration workflows
D. Modify a count parameter to scale resources
E. API driven workflows
答案：*B*

Question #144

You're writing a Terraform configuration that needs to read input from a local file called id_rsa.pub.
Which built-in Terraform function can you use to import the file's contents as a string?
A. fileset("id_rsa.pub")
B. filebase64("id_rsa.pub")

C. templatefile("id_rsa.pub")
D. file("id_rsa.pub")
答案：*D*

Question #145
What does Terraform use providers for? (Choose three.)
A. Provision resources for on-premises infrastructure services
B. Simplify API interactions
C. Provision resources for public cloud infrastructure services
D. Enforce security and compliance policies
E. Group a collection of Terraform configuration files that map to a single state file
答案：*ABC*

Question #146
You can reference a resource created with for_each using a Splat (*) expression.
A. True
B. False
答案：*B*

Question #147
How does Terraform determine dependencies between resources?
A. Terraform automatically builds a resource graph based on resources, provisioners, special meta-parameters, and the state file, if present.
B. Terraform requires all dependencies between resources to be specified using the depends_on parameter
C. Terraform requires resources in a configuration to be listed in the order they will be created to determine dependencies
D. Terraform requires resource dependencies to be defined as modules and sourced in order
答案：*A*

Question #148
Which parameters does terraform import require? (Choose two.)
A. Path
B. Provider
C. Resource ID
D. Resource address
答案：*CD*

Question #149 ?
Once a new Terraform backend is configured with a Terraform code block, which command(s) is (are) used to migrate the state file?
A. terraform apply
B. terraform push

C. terraform destroy, then terraform apply
D. terraform init
答案：*D*

Question #150
What does this code do?

```
Terraform{
        Required_providers{
                Aws = “~> 3.0”
        }
}
```

A. Requires any version of the AWS provider >= 3.0 and < 4.0
B. Requires any version of the AWS provider >= 3.0
C. Requires any version of the AWS provider after the 3.0 major release, like 4.1
D. Requires any version of the AWS provider > 3.0
答案：*A*

Question #151
What does terraform refresh modify?
A. Your cloud infrastructure
B. Your state file
C. Your Terraform plan
D. Your Terraform configuration
答案：*B*

Question #152
Which of the following is not valid source path for specifying a module?
A. source = "./modulelversion=v1.0.0"
B. source = "github.com/hashicorp/example?ref=v1.0.0"
C. source = "./module"
D. source = "hashicorp/consul/aws"
答案：*A*

Question #153
Which of the following is true about terraform apply? (Choose two.)
A. It only operates on infrastructure defined in the current working directory or workspace
B. You must pass the output of a terraform plan command to it
C. Depending on provider specification, Terraform may need to destroy and recreate your infrastructure resources
D. By default, it does not refresh your state file to reflect current infrastructure configuration
E. You cannot target specific resources for the operation
答案：*AC*

Question #154

Which of the following statements about local modules is incorrect?
A. Local modules are not cached by terraform init command
B. Local modules are sourced from a directory on disk
C. Local modules support versions
D. All of the above (all statements above are incorrect)
E. None of the above (all statements above are correct)
答案：*C*

Question #155

Which of the following is true about Terraform's implementation of infrastructure as code? (Choose two.)
A. It is only compatible with AWS infrastructure management
B. You cannot reuse infrastructure configuration
C. You can version your infrastructure configuration
D. It requires manual configuration of infrastructure resources
E. It allows you to automate infrastructure provisioning
答案：*CE*

Question #156

You need to write some Terraform code that adds 42 firewall rules to a security group as shown in the example.

```
Resource “asw_security_group” “many_rules”{
        Name = “many-rules”
        Ingress{
                From_port = 443
                To_port = 443
                Protocol = “tcp”
                Cidr_blocks = “0.0.0.0/0”
        }
}
```

What can you use to avoid writing 42 different nested ingress config blocks by hand?
A. A count loop
B. A for block
C. A for each block
D. A dynamic block
答案：*D*

Question #157

Which of the following is the safest way to inject sensitive values into a Terraform Cloud workspace?
A. Write the value to a file and specify the file with the -var-file flag
B. Set a value for the variable in the UI and check the "Sensitive" check box
C. Edit the state file directly just before running terraform apply
D. Set the variable value on the command line with the -var flag
答案：*B*

Question #158
terraform apply will fail if you have not am terraform plan first to update the plan output.
A. True
B. False
答案：*B*

Question #159
How would you reference the attribute "name" of this fictitious resource in HCL?

```
Resource “asw_security_group” “many_rules”{
        Name = “many-rules”
        Ingress{
                From_port = 443
                To_port = 443
                Protocol = “tcp”
                Cidr_blocks = “0.0.0.0/0”
        }
}
```

A. resource.kubernetes_namespace.example.name
B. kubernetes_namespace.test.name
C. kubernetes_namespace.example.name
D. data.kubernetes_namespace.name
E. None of the above
答案：*C*

Question #160
A Terraform output that sets the "sensitive" argument to true will not store that value in the state file.
A. True
B. False
答案：*B*

Question #161
Which are forbidden actions when the Terraform state file is locked? (Choose three.)
A. terraform destroy
B. terraform fmt
C. terraform state list
D. terraform apply
E. terraform plan
F. terraform validate
答案：*ADE*

Question #162
Terraform installs its providers during which phase?
A. Plan
B. Init

C. Refresh
D. All of the above
答案：*B*

Question #163
When does Sentinel enforce policy logic during a Terraform Enterprise run?
A. Before the plan phase
B. During the plan phase
C. Before the apply phase
D. After the apply phase
答案：*C*

Question #164
What is the purpose of a Terraform workspace in either open source or enterprise?
A. Workspaces allow you to manage collections of infrastructure in state files
B. A logical separation of business units
C. A method of grouping multiple infrastructure security policies
D. Provides limited access to a cloud environment
答案：*A*

Question #165
Which is the best way to specify a tag of v1.0.0 when referencing a module stored in Git (for example git::https://example.com/vpc.git)?
A. Append ?ref=v1. 0. 0 argument to the source path
B. Add version = "1.0.0" parameter to module block
C. Nothing ג€" modules stored on GitHub always default to version 1.0.0
D. Modules stored on GitHub do not support versioning
答案：*A*

Question #166
Changing the Terraform backend from the default "local" backend to a different one after doing your first terraform apply is:
A. Mandatory
B. Optional
C. Impossible
D. Discouraged
答案：*B*

Question #167
You have modified your local Terraform configuration and ran terraform plan to review the changes. Simultaneously, your teammate manually modified the infrastructure component you are working on. Since you already ran terraform plan locally, the execution plan for terraform apply will be the same.
A. True

B. False
答案: *B*

Question #168
terraform apply is failing with the following error. What next step should you take to determine the root cause of the problem?
Error loading state: AccessDenied: Access Denied status code: 403, request id: 288766CE5CCA24A0, host id: FOOBAR
A. Set TF_LOG=DEBUG
B. Review syslog for Terraform error messages
C. Run terraform login to reauthenticate with the provider
D. Review /var/log/terraform.log for error messages
答案: *A*

Question #169
As a member of an operations team that uses infrastructure as code (IaC) practices, you are tasked with making a change to an infrastructure stack running in a public cloud.
Which pattern would follow IaC best practices for making a change?
A. Clone the repository containing your infrastructure code and then run the code
B. Use the public cloud console to make the change after a database record has been approved
C. Make the change programmatically via the public cloud CLI
D. Make the change via the public cloud API endpoint
E. Submit a pull request and wait for an approved merge of the proposed changes
答案: *E*

Question #170
What command can you run to generate DOT (Document Template) formatted data to visualize Terraform dependencies?
A. terraform refresh
B. terraform show
C. terraform graph
D. terraform output
答案: *C*

Question #171
Which provider authentication method prevents credentials from being stored in the state file?
A. Using environment variables
B. Specifying the login credentials in the provider block
C. Setting credentials as Terraform variables
D. None of the above
答案: *A*

Question #172

Running terraform fmt without any flags in a directory with Terraform configuration files will check the formatting of those files without changing their contents.

A. True

B. False

答案：*B*

Question #173

terraform init retrieves the source code for all referenced modules.

A. True

B. False

答案：*A*

Question #174

You have a Terraform configuration that Defines a single virtual machine with no references to it. You have run terraform apply to create the resource, and then removed the resource definition from your Terraform configuration file.

What will happen when you run terraform apply in the working directory again?

A. Nothing

B. Terraform will destroy the virtual machine

C. Terraform will error

D. Terraform will remove the virtual machine from the state file, but the resource will still exist

答案：*B*

Question #175

Which configuration consistency errors does terraform validate report?

A. A mix of spaces and tabs in configuration files

B. Differences between local and remote state

C. Terraform module isn't the latest version

D. Declaring a resource identifier more than once

答案：*D*

Question #176

In Terraform HCL, an object type of object({ name=string, age=number }) would match this value:

A:

```
{
        Name = “john”
        Age = fifty two
}
```

B:

```
{
        Name = “john”
        Age = 52
```

}
答案：*B*

Question #177
Where can Terraform not load a provider from?
A. Source code
B. Plugins directory
C. official HashiCorp distribution on releases.hashicorp.com
D. Provider plugin cache
答案：*A*

Question #178
Which of the following locations can Terraform use as a private source for modules? (Choose two.)
A. Internally hosted SCM (Source Control Manager) platform
B. Public Terraform Module Registry
C. Private repository on GitHub
D. Public repository on GitHub
答案：*AC*

Question #179
Why should secrets not be hard coded into Terraform code? (Choose two.)
A. It makes the code less reusable.
B. Terraform code is typically stored in version control, as well as copied to the systems from which it's run. Any of those may not have robust security mechanisms.
C. The Terraform code is copied to the target resources to be applied locally and could expose secrets if a target resource is compromised.
D. All passwords should be rotated on a quarterly basis.
答案：*AB*

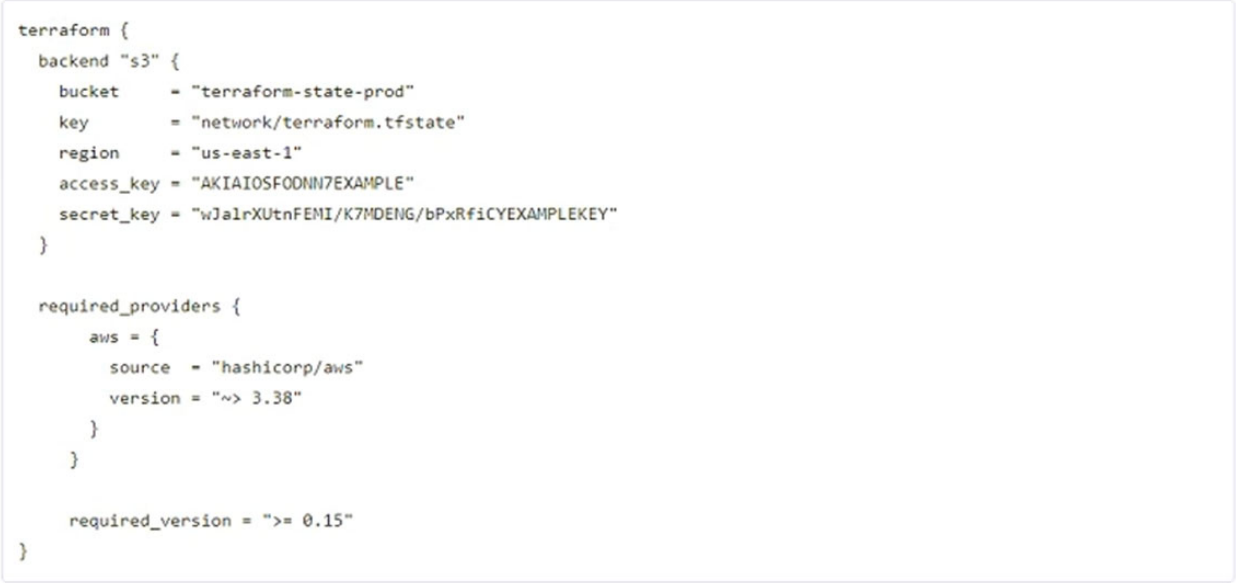
Question #180
If a Terraform creation-time provisioner fails, what will occur by default?
A. The resource will not be affected, but the provisioner will need to be applied again
B. The resource will be destroyed
C. The resource will be marked as "tainted"
D. Nothing, provisioners will not show errors in the command line
答案：*C*

Question #181
When should Terraform configuration files be written when running terraform import on existing infrastructure?
A. Infrastructure can be imported without corresponding Terraform code
B. Terraform will generate the corresponding configuration files for you
C. You should write Terraform configuration files after the next terraform import is executed
D. Terraform configuration should be written before terraform import is executed

答案: *D*

Question #182
Which command lets you experiment with Terraform's built-in functions?
A. terraform env
B. terraform console
C. terraform test
D. terraform validate
答案: *B*
解析:
https://www.terraform.io/language/functions

Question #183
Why does this backend configuration not follow best practices?



```
terraform {
  backend "s3" {
    bucket     = "terraform-state-prod"
    key        = "network/terraform.tfstate"
    region     = "us-east-1"
    access_key = "AKIAIOSFODNN7EXAMPLE"
    secret_key = "wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY"
  }

  required_providers {
      aws = {
        source  = "hashicorp/aws"
        version = "~> 3.38"
      }
    }

    required_version = ">= 0.15"
}
```

A. You should not store credentials in Terraform configuration
B. You should use the local enhanced storage backend whenever possible
C. An alias meta-argument should be included in backend blocks whenever possible
D. The backend configuration should contain multiple credentials so that more than one user can execute terraform plan and terraform apply
答案: *A*

Question #184
Open source Terraform can only import publicly-accessible and open-source modules.
A. True
B. False
答案: *B*

Question #185
What does terraform destroy do?

A. Destroy all infrastructure in the Terraform state file
B. Destroy all Terraform code files in the current directory while leaving the state file intact
C. Destroy all infrastructure in the configured Terraform provider
D. Destroy the Terraform state file while leaving infrastructure intact
答案: ***A***

Question #186
While attempting to deploy resources into your cloud provider using Terraform, you begin to see some odd behavior and experience sluggish responses. In order to troubleshoot you decide to turn on Terraform debugging. Which environment variables must be configured to make Terraform's logging more verbose?
A. TF_LOG_LEVEL
B. TF_LOG_FILE
C. TF_LOG
D. TP_LOG_PATH
答案: *C*
解析:
https://www.terraform.io/internals/debugging

Question #187
If a DevOps team adopts AWS CloudFormation as their standardized method for provisioning public cloud resources, which of the following scenarios poses a challenge for this team?
A. The team is asked to build a reusable code base that can deploy resources into any AWS region
B. The team is asked to manage a new application stack built on AWS-native services
C. The organization decides to expand into Azure and wishes to deploy new infrastructure using their existing codebase
D. The DevOps team is tasked with automating a manual provisioning process
答案: ***C***

Question #188
You cannot install third party plugins using terraform init.
A. True
B. False
答案: *B*

Question #189
Which of the following can you do with terraform plan? (Choose two.)
A. Save a generated execution plan to apply later
B. Execute a plan in a different workspace
C. View the execution plan and check if the changes match your expectations
D. Schedule Terraform to run at a planned time in the future

答案：*AC*
解析：
https://learn.hashicorp.com/tutorials/terraform/plan

Question #190
Which are examples of infrastructure as code? (Choose two.)
A. Cloned virtual machine images
B. Change management database records
C. Versioned configuration files
D. Docker files
答案：*CD*

Question #192
When using a module from the public Terraform Module Registry, the following parameters are required attributes in the module block. (Choose two.)
A. Each of the module's required inputs
B. The module's source address
C. Terraform Module Registry account token
D. Each of the module's dependencies (example: submodules)
E. The version of the module
答案：*AB*

Question #193
As a developer, you want to ensure your plugins are up to date with the latest versions. Which Terraform command should you use?
A. terraform init -upgrade
B. terraform apply -upgrade
C. terraform refresh -upgrade
D. terraform providers -upgrade
答案：*A*

Question #194
You can access state stored with the local backend by using the terraform_remote_state data source.
A. True
B. False
答案：***A***

Question #195
You have been working in a Cloud provider account that is shared with other team members. You previously used Terraform to create a load balancer that is listening on

port 80. After some application changes, you updated the Terraform code to change the port to 443.
You run terraform plan and see that the execution plan shows the port changing from 80 to 443 like you intended, and step away to grab some coffee.
In the meantime, another team member manually changes the load balancer port to 443 through the Cloud provider console before you get back to
your desk.
What will happen when you terraform apply upon returning to your desk?
A. Terraform will fail with an error because the state file is no longer accurate.
B. Terraform will change the load balancer port to 80, and then change it back to 443.
C. Terraform will not make any changes to the Load Balancer and will update the state file to reflect any changes made.
D. Terraform will change the port back to 80 in your code.
答案：*C*

Question #196
In a Terraform Cloud workspace linked to a version control repository, speculative plan runs start automatically when you merge or commit changes to version control.
A. True
B. False
答案：*A*

Question #197
You have some Terraform code and a variable definitions file named dev.auto.tfvars that you tested successfully in the dev environment. You want to deploy the same code in the staging environment with a separate variable definition file and a separate state file.
Which two actions should you perform? (Choose two.)
A. Copy the existing terraform.tfstate file and save it as staging.terraform.tfstate
B. Write a new staging.auto.tfvars variable definition file and run Terraform with the var-file="staging.auto.tfvars" flag
C. Create a new Terraform workspace for staging
D. Create a new Terraform provider for staging
E. Add new Terraform code (*.tf files) for staging in the same directory
答案：*BC*

Question #198 ?
The ________ determines how Terraform creates, updates, or deletes resources.
A. Terraform configuration
B. Terraform core
C. Terraform provider
D. Terraform provisioner
答案：***C***

Question #199

Terraform destroy is the only way to remove infrastructure.

A. True

B. False

答案：*B*

Question #200

Which of the following is the correct way to pass the value in the variable num_servers into a module with the input servers in HCL2?

A. servers - var.num_servers

B. servers - num_servers

C. servers - var(num_servers)

D. $(var.num_servers)

答案：***A***

Question #201

Which of the fallowing commands would you use to access all of the attributes and details of a resource managed by Terraform?

A. terraform state list

B. terraform state show

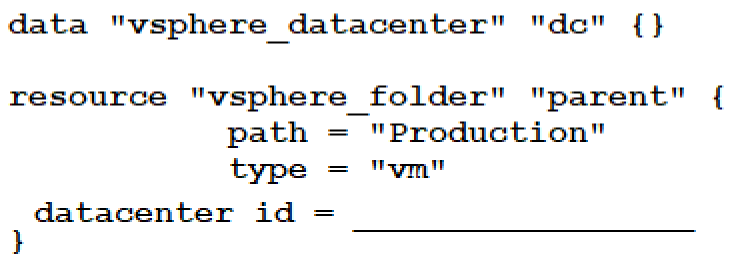
C. terraform get

D. terraform state list

答案：*B*

Question #202

How would you be able to reference an attribute from the vsphere_datacenter data source for use with the datacenter_id argument within the vsphere_folder resource in the following configuration?



```
data "vsphere_datacenter" "dc" {}

resource "vsphere_folder" "parent" {
            path = "Production"
            type = "vm"
 datacenter_id = ____________________
}
```

A. data.dc.id

B. data.vsphere_datacenter.dc

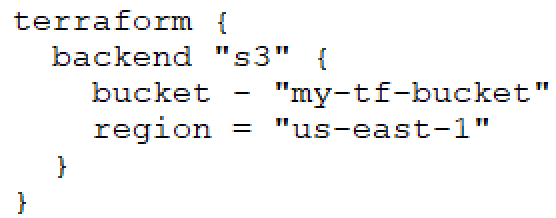
C. vsphere_datacenter.dc.id

D. data.vsphere_datacenter.dc.id

答案：*D*

Question #203

You decide to move a Terraform state file to Amazon S3 from another location. You write the code below into a file called backend.tf.



```
terraform {
  backend "s3" {
    bucket - "my-tf-bucket"
    region = "us-east-1"
  }
}
```

Which command will migrate your current state file to the new S3 remote backend?
A. terraform state
B. terraform init
C. terraform refresh
D. terraform push
答案：*B*

Question #204
You want to tag multiple resources with a string that is a combination of a generated random_id and a variable.
How should you use the same value in all these resources without repeating the random_id and variable in each resource?
A. Local values
B. Data source
C. Modules
D. Outputs
答案：*A*

Question #205
Which of the following is not a benefit of adopting infrastructure as code?
A. Interpolation
B. Reusability of code
C. Versioning
D. Automation
答案：*A*

Question #206
Module version is required to reference a module on the Terraform Module Registry.
A. True
B. False
答案：*B*

Question #207
While deploying a virtual machine, the first launch user_data script fails due to race condition with another resource deployed during the same Terraform run.
What is the least disruptive method to correct the issue?
A. Run terraform taint against the virtual machine’s resource name, then terraform apply

B. Restart the virtual machine from the cloud portal
C. Run terraform apply again
D. Run terraform destroy then terraform apply
答案：*A*

Question #208
The public Module Registry is free to use.
A. True
B. False
答案：*A*

Question #209
Both Terraform Cloud and Terraform Enterprise support policy as code (Sentinel).
A. True
B. False
答案：*A*

Question #210
You want to Define multiple data disks as nested blocks inside the resource block for a virtual machine.
What Terraform feature would help you Define the blocks using the values in a variable?
A. Local values
B. Collection functions
C. Dynamic blocks
D. Count arguments
答案：*C*

Question #211
Which of the following module source paths does not specify a remote module?
A. source = “./modules/consul”
B. source = “git@github.com:hashicorp/example.git”
C. source = “github.com/hashicorp/example”
D. source = “hashicorp/consul/aws”
答案：***A***

Question #212
You have a list of numbers that represents the number of free CPU cores on each virtual cluster:
numcpus = [18, 3, 7, 11, 2]
What Terraform function could you use to select the largest number from the list?
A. max(numcpus)
B. ceil(numcpus)
C. top(numcpus)
D. high[numcpus]
答案：*A*

Question #213

Variables declared within a module are accessible outside of the module.

A. True
B. False

答案: *B*

Question #214

Which of the following is not a valid Terraform variable type?

A. list
B. map
C. array
D. string

答案: *C*

Question #215

What is a key benefit of the Terraform state file?

A. A state file can be used to schedule recurring infrastructure tasks
B. A state file represents a source of truth for resources provisioned with a public cloud console
C. A state file represents the desired state expressed by the Terraform code files
D. A state file represents a source of truth for resources provisioned with Terraform

答案: *D*

Question #216

Which of these statements about Terraform Enterprise workspaces is false?

A. They can securely store cloud credentials
B. You must use the CLI to switch between workspaces
C. Plans and applies can be triggered via version control system integrations
D. They have role-based access controls

答案: *B*

简答题

Question #47

FILL BLANK -

You need to specify a dependency manually.

What resource meta-parameter can you use to make sure Terraform respects the dependency?

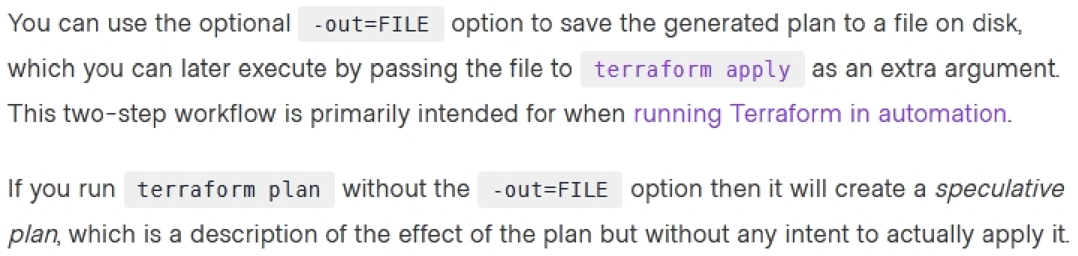
Type your answer in the field provided. The text field is not case-sensitive and all variations of the correct answer are accepted.

答案: 先自己做做，然后看解析

解析: *depends_on*

Question #61

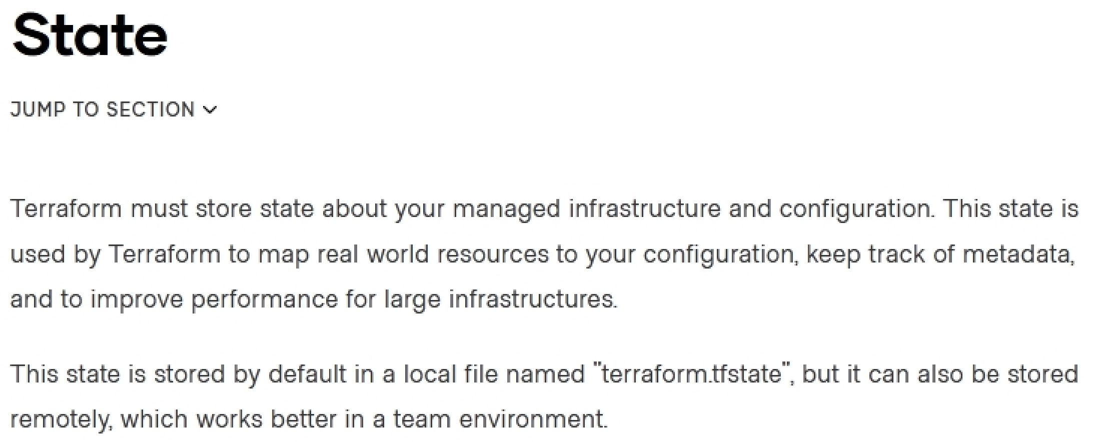
FILL BLANK -
Which flag would you add to terraform plan to save the execution plan to a file?
Type your answer in the field provided. The text field is not case-sensitive and all variations of the correct answer are accepted.
答案：先自己做做，然后看解析
解析：*-out=FILENAME*
https://www.terraform.io/docs/cli/commands/plan.html



You can use the optional `-out=FILE` option to save the generated plan to a file on disk, which you can later execute by passing the file to `terraform apply` as an extra argument. This two-step workflow is primarily intended for when running Terraform in automation.

If you run `terraform plan` without the `-out=FILE` option then it will create a *speculative plan*, which is a description of the effect of the plan but without any intent to actually apply it.

Question #62
FILL BLANK -
What is the name of the default file where Terraform stores the state?
Type your answer in the field provided. The text field is not case-sensitive and all variations of the correct answer are accepted.
答案：先自己做做，然后看解析
解析：*Terraform.tfstate*
https://www.terraform.io/docs/language/state/index.html



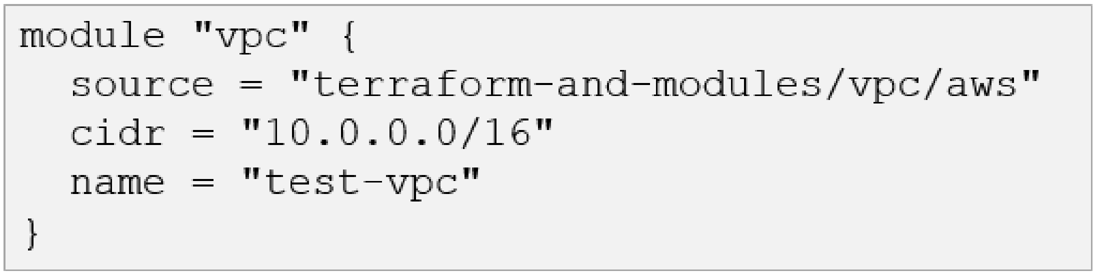
State

JUMP TO SECTION ⌄

Terraform must store state about your managed infrastructure and configuration. This state is used by Terraform to map real world resources to your configuration, keep track of metadata, and to improve performance for large infrastructures.

This state is stored by default in a local file named "terraform.tfstate", but it can also be stored remotely, which works better in a team environment.

Question #108
FILL BLANK -
In the below configuration, how would you reference the module output vpc_id?



```
module "vpc" {
  source = "terraform-and-modules/vpc/aws"
  cidr = "10.0.0.0/16"
  name = "test-vpc"
}
```

Type your answer in the field provided. The text field is not case sensitive and all variations of the correct answer are accepted.
答案：先自己做做，然后看解析
解析：module.vpc.vpc_id
https://cloudcasts.io/course/terraform/community-vpc-module

Question #191
FILL BLANK -
You need to migrate a workspace to use a remote backend. After updating your configuration, what command do you run to perform the migration?
Type your answer in the field provided. The text field is not case-sensitive and all variations of the correct answer are accepted.
答案：先自己做做，然后看解析
解析：*terraform init*