Here’s a comprehensive list of Ansible interview questions, categorized into basic, intermediate, and advanced levels, covering a wide range of topics including command-line parameters, variables, roles, Galaxy, idempotence, inventory, configuration, installation, Jenkins integration, and more.

### **Basic Level**

1. What is Ansible?
   * Answer: Ansible is an open-source automation tool used for configuration management, application deployment, and task automation.
2. Explain the architecture of Ansible.
   * Answer: Ansible architecture includes modules, inventory, playbooks, plugins, and the Ansible command line tool. It is agentless and uses SSH for communication.
3. What is an Ansible playbook?
   * Answer: A playbook is a YAML file containing a series of tasks that define automation across a set of hosts.
4. What is an inventory file in Ansible?
   * Answer: An inventory file defines the hosts and groups of hosts on which Ansible commands, modules, and playbooks operate.
5. How do you run an Ansible playbook?
   * Answer: By using the command ansible-playbook <playbook-name>.yml.
6. What is a task in Ansible?
   * Answer: A task is a single action to be performed on the managed nodes, such as installing a package or copying a file.
7. What are Ansible modules?
   * Answer: Modules are the units of work in Ansible that define specific operations (e.g., file operations, package management).
8. Explain the purpose of the --check parameter in Ansible.
   * Answer: The --check parameter runs a playbook in dry-run mode, showing what changes would be made without actually applying them.
9. How do you define variables in Ansible?
   * Answer: Variables can be defined in playbooks, inventory files, roles, or passed as extra variables during playbook execution.
10. What is an Ansible role?
    * Answer: A role is a way to organize playbooks and other files to be easily reused and shared. It contains tasks, variables, files, templates, and handlers.
11. What are some common use cases for Ansible?
    * Answer: Common use cases include configuration management, application deployment, task automation, and IT orchestration.
12. How do you install Ansible?
    * Answer: Ansible can be installed using package managers like pip, apt, yum, or by using the official Ansible PPA repository.
13. What is YAML, and why is it used in Ansible?
    * Answer: YAML (Yet Another Markup Language) is a human-readable data serialization format used for writing Ansible playbooks and configuration files due to its simplicity and readability.
14. How do you define a simple task in an Ansible playbook?
    * Answer:

- name: Install nginx

apt:

name: nginx

state: present

1. What is the command to check the version of Ansible installed?
   * Answer: ansible --version
2. How do you run an ad-hoc command in Ansible?
   * Answer: Use the ansible command followed by the host group, module, and arguments, e.g., ansible all -m ping.
3. What are Ansible Galaxy and its benefits?
   * Answer: Ansible Galaxy is a repository for sharing Ansible roles. It allows users to download and share pre-built roles to simplify playbook creation.
4. How do you update an existing Ansible Galaxy role?
   * Answer: Use the command ansible-galaxy install <role\_name> --force to update a role.
5. Explain the use of the ansible-doc command.
   * Answer: The ansible-doc command provides documentation for Ansible modules, including available parameters and usage examples.
6. What are Ansible collections?
   * Answer: Collections are a distribution format for Ansible content that can include roles, modules, playbooks, and plugins.
7. What is the difference between apt and yum modules in Ansible?
   * Answer: apt is used for managing packages on Debian-based systems, while yum is used for managing packages on Red Hat-based systems.
8. How do you copy a file from the control node to a managed node?
   * Answer:

- name: Copy a file

copy:

src: /path/to/source/file

dest: /path/to/destination/file

1. What is the hosts keyword in an Ansible playbook?
   * Answer: The hosts keyword specifies the target hosts or groups on which the playbook tasks should run.
2. How do you use the become directive in a playbook?
   * Answer:

- name: Install package

become: yes

apt:

name: htop

state: present

1. What is a debug task, and how is it used?
   * Answer:

- name: Show a message

debug:

msg: "This is a debug message"

1. How do you include one playbook inside another playbook?
   * Answer:

- import\_playbook: another\_playbook.yml

1. What is the ansible-playbook --syntax-check command used for?
   * Answer: It checks the syntax of a playbook without executing it.
2. What is the purpose of the ansible-galaxy init command?
   * Answer: It initializes a new Ansible role with a standard directory structure.
3. How do you use the ansible-pull command?
   * Answer: ansible-pull is used to apply a playbook directly from a VCS repository on the remote hosts, pulling the latest changes before running.
4. How do you list all hosts in an inventory file?
   * Answer: Use the command ansible all --list-hosts.
5. What is a loop in Ansible, and how is it used?
   * Answer:

- name: Install multiple packages

apt:

name: "{{ item }}"

state: present

loop:

- nginx

- htop

- git

1. How do you add a comment in an Ansible playbook?
   * Answer: Comments in YAML files are added using the # symbol,   
     e.g., # This is a comment.
2. What is the ansible-inventory command used for?
   * Answer: The ansible-inventory command displays or validates the inventory and can convert between different formats.
3. How do you define a default variable in a role?
   * Answer: Default variables are defined in the defaults/main.yml file of the role.

### **Intermediate Level**

1. How do you use Ansible Vault?
   * Answer: Ansible Vault encrypts sensitive data such as passwords. Use the ansible-vault command to create, edit, encrypt, and decrypt files.
2. What are handlers in Ansible?
   * Answer: Handlers are tasks that are triggered by other tasks using the notify directive. They typically handle service restarts.
3. Explain the concept of idempotence in Ansible.
   * Answer: Idempotence ensures that the same task applied multiple times has the same effect as if it was applied once, preventing unnecessary changes.
4. How do you install Ansible Galaxy roles?
   * Answer: Use the command ansible-galaxy install <role\_name> to download and install roles from Ansible Galaxy.
5. What is the purpose of the ansible.cfg file?
   * Answer: ansible.cfg is the configuration file for Ansible that can define settings like inventory path, module paths, and default arguments for Ansible commands.
6. How do you use dynamic inventory in Ansible?
   * Answer: Dynamic inventory scripts generate inventory data on the fly, often by querying cloud providers or other APIs.
7. How can you pass variables from the command line when running a playbook?
   * Answer: Use the -e or --extra-vars parameter, e.g., ansible-playbook playbook.yml -e "variable\_name=value".
8. What is a Jinja2 template in Ansible?
   * Answer: Jinja2 templates are used in Ansible to generate files dynamically, with variables and expressions embedded in templates.
9. How do you integrate Ansible with Jenkins?
   * Answer: Integrate Ansible with Jenkins by using Jenkins pipelines or freestyle jobs to call Ansible playbooks through shell commands or Ansible plugins.
10. What are Ansible facts and how are they used?
    * Answer: Facts are system properties collected by Ansible automatically from managed hosts. They are used to make decisions and customize tasks within playbooks.

### **Advanced Level**

1. Explain the use of custom Ansible modules.
   * Answer: Custom modules are user-defined modules for specific tasks not covered by built-in modules, written in any language that can return JSON.
2. How do you handle errors in Ansible playbooks?
   * Answer: Use the ignore\_errors directive to continue executing even if a task fails or use block/rescue to handle errors gracefully.
3. What is a callback plugin in Ansible?
   * Answer: Callback plugins enable custom reporting of Ansible runs, such as sending notifications or logging to external systems.
4. How can you optimize Ansible playbooks for large-scale deployments?
   * Answer: Use strategies like free, linear, or serial, and manage parallelism with the forks parameter. Optimize tasks to minimize changes and use cached facts.
5. Explain the purpose and use of the --diff parameter.
   * Answer: The --diff parameter shows the changes that would be made to files by tasks, useful for understanding the impact of playbook changes.
6. How do you use conditionals in Ansible tasks?
   * Answer: Use the when directive to conditionally execute tasks based on variables, facts, or other conditions.
7. Describe the process of writing an Ansible role from scratch.
   * Answer: An Ansible role should include directories for tasks, handlers, files, templates, vars, defaults, and meta. Use ansible-galaxy init <role\_name> to create a skeleton.
8. What are the best practices for managing sensitive information in Ansible?
   * Answer: Use Ansible Vault for encrypting sensitive data, minimize sensitive data exposure in playbooks, and use environment variables for credentials.
9. How do you ensure idempotence in custom Ansible modules?
   * Answer: Ensure that modules can check the current state of the system and only make changes if necessary, returning a changed status accurately.
10. Explain the use of block, rescue, and always in Ansible.
    * Answer: These directives allow grouping tasks and handling errors gracefully. block contains the main tasks, rescue handles errors, and always runs tasks regardless of previous outcomes.