1. What is the difference between scalability and elasticity?  
Scalability is the ability of a system to increase the workload on its current hardware resources to handle variability in demand. Elasticity is the ability of a system to increase the workload on its current and additional hardware resources, thereby enabling businesses to meet demand without investing in infrastructure up-front.

2. What are the different layers of cloud computing?  
The three layers are:  
Infrastructure as a Service (IaaS)  
Platform as a Service (PaaS)  
Software as a Service (SaaS)

3. How to secure your data for transport in cloud?  
Ensure that no one can intercept the data as it moves from point A to point B in the cloud and also check that there are no data leaks with the encryption key from any storage in the cloud. You can also segregate your data from other companies’ data and then encrypt it by using an approved method. In addition you can ensure the security of older data that remains with a cloud vendor after you have no use for it.

AWS Architect Interview Questions  
4. List out different layers which define cloud architecture?  
There are five layers:  
Cloud Controller (CLC)  
Walrus  
Cluster Controller  
Storage Controller (SC)  
Node Controller (NC)

5. What are the security laws which are implemented to secure data in a cloud?  
The security laws which are implemented to secure data in cloud are:  
Processing  
File  
Output reconciliation  
Input Validation  
Security and Backup

6. What uses do API’s have in cloud services?  
Application Programming Interface (API) has the following uses:  
It eliminates the need to write fully fledged programs  
It provides the instructions to set up communication between one or more applications  
It allows easy creation of applications and links the cloud services with other systems

7. How many data centers are deployed for cloud computing? What are they?  
There are two datacenters in cloud computing:  
Containerized Datacenters  
Low Density Datacenters

8. What is S3? What is it used for? Should encryption be used in S3?  
According to Amazon, S3 is storage for the Internet. They define it as a, “simple storage service that offers software developers a highly-scalable, reliable, and low-latency data storage infrastructure at very low costs”.  
Amazon S3 provides a simple web service interface which you can use to store and retrieve any amount of data, at any time, from anywhere on the web. Using this web service, developers can easily build applications that make use of Internet storage.  
Encryption should be considered for sensitive data, as S3 is a proprietary technology developed by Amazon themselves, and yet to be proven from a security standpoint.

9. What is Amazon EC2 service?  
Amazon describes Elastic Compute Cloud (Amazon EC2) as a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. Amazon EC2’s simple web service interface allows developers to obtain and configure capacity with minimal friction.

10. What is an AMI?  
An Amazon Machine Image (AMI) provides the information required to launch an instance, which is a virtual server in the cloud. You specify an AMI when you launch an instance, and you can launch as many instances from the AMI as you need. You can also launch instances from as many different AMIs as you need. Source: http://docs.aws.amazon.com  
An AMI includes the following:  
A template for the root volume for the instance ( such as an operating system, an application server, and applications)  
Launch permissions that control which AWS accounts can use the AMI to launch instances  
A block device mapping that specifies the volumes to attach to the instance when it’s launched

11. What is the relation between Instance and AMI?  
An Amazon Machine Image (AMI) is a template that contains a software configuration (for example, an operating system, an application server, and applications). From an AMI, you launch an instance, which is a copy of the AMI running as a virtual server in the cloud.  
You can launch different types of instances from a single AMI. An instance type determines the hardware of the host computer used for your instance. Each instance type offers different compute and memory capabilities.

12. What automation tools can you use to spinup servers?  
Any of the following tools can be used:  
Roll-your-own scripts, and use the AWS API tools. Such scripts could be written in bash, perl or other language or your choice.  
Use a configuration management and provisioning tool like puppet or its successor Opscode Chef. You can also use a tool like Scalr.  
Use a managed solution such as Rightscale.

13. What are the different deployment models for Cloud?  
The different models are:  
Private Cloud  
Public Cloud  
Hybrid Clouds

14. What is auto-scaling? How does it work?  
Autoscaling is a feature of AWS which allows you to configure and automatically provision and spinup new instances without the need for your intervention. You can do this by setting thresholds and metrics to monitor. When those thresholds are crossed, a new instance of your choosing will be spun up, configured, and rolled into the load balancer pool.

15. What are the Security Best Practices for Amazon EC2?  
There are several best practices for secure Amazon EC2. A few of them are given below:  
Use AWS Identity and Access Management (IAM) to control access to your AWS resources.  
Restrict access by only allowing trusted hosts or networks to access ports on your instance.  
Review the rules in your security groups regularly, and ensure that you apply the principle of least  
Privilege – only open up permissions that you require.  
Disable password-based logins for instances launched from your AMI. Passwords can be found or cracked, and are a security risk.

16. How is buffer used in Amazon web services?  
Buffer is used to make the system more resilient to burst of traffic or load by synchronizing different components. The components always receive and process the requests in an unbalanced way. Buffer keeps the balance between different components and makes them work at the same speed to provide faster services.

17. What is the function of Amazon Elastic Compute Cloud?  
Amazon Elastic compute cloud also known as Amazon EC2 is an Amazon web service that provides scalable resources and makes the computing easier for developers. The main functions of Amazon EC2 are:  
It provides easy configurable options and allow user to configure the capacity.  
It provides the complete control of computing resources and let the user run the computing environment according to his requirements.  
It provides a fast way to run the instances and quickly book the system hence reducing the overall time.  
It provides scalability to the resources and changes its environment according to the requirement of the user.  
It provides varieties of tools to the developers to build failure resilient applications.

18. What are the different components used in AWS?  
The components that are used in AWS are:  
Amazon S3: it is used to retrieve input data sets that are involved in making a cloud architecture and also used to store the output data sets that is the result of the input.  
Amazon SQS: it is used for buffering requests that is received by the controller of the Amazon. It is the component that is used for communication between different controllers.  
Amazon SimpleDB: it is used to store intermediate status log and the tasks that are performed by the user/  
Amazon EC2: it is used to run a large distributed processing on the Hadoop cluster. It provides automatic parallelization and job scheduling.

19. Explain Stopping, Starting, and Terminating an Amazon EC2 instance?  
Stopping and Starting an instance: When an instance is stopped, the instance performs a normal shutdown and then transitions to a stopped state. All of its Amazon EBS volumes remain attached, and you can start the instance again at a later time. You are not charged for additional instance hours while the instance is in a stopped state.  
Terminating an instance: When an instance is terminated, the instance performs a normal shutdown, then the attached Amazon EBS volumes are deleted unless the volume’s deleteOnTermination attribute is set to false. The instance itself is also deleted, and you can’t start the instance again at a later time.

20. Explain what is S3?  
S3 stands for Simple Storage Service. You can use S3 interface to store and retrieve any amount of data, at any time and from anywhere on the web. For S3, the payment model is “pay as you go”.

21. Explain what is AMI?  
AMI stands for Amazon Machine Image. It’s a template that provides the information (an operating system, an application server and applications) required to launch an instance, which is a copy of the AMI running as a virtual server in the cloud. You can launch instances from as many different AMIs as you need.

22. Mention what is the relation between an instance and AMI?  
From a single AMI, you can launch multiple types of instances. An instance type defines the hardware of the host computer used for your instance. Each instance type provides different compute and memory capabilities. Once you launch an instance, it looks like a traditional host, and we can interact with it as we would with any computer.

23. What does an AMI include?  
An AMI includes the following things  
A template for the root volume for the instance  
Launch permissions decide which AWS accounts can avail the AMI to launch instances  
A block device mapping that determines the volumes to attach to the instance when it is launched

24. How can you send request to Amazon S3?  
Amazon S3 is a REST service, you can send request by using the REST API or the AWS SDK wrapper libraries that wrap the underlying Amazon S3 REST API.

25. Explain can you vertically scale an Amazon instance? How?  
Yes, you can vertically scale on Amazon instance. For that  
=> Spin up a new larger instance than the one you are currently running  
=> Pause that instance and detach the root webs volume from the server and discard  
=> Then stop your live instance and detach its root volume  
=> Note the unique device ID and attach that root volume to your new server  
=> And start it again