1) **Advantages of Cloud** **Computing ?**

**#Trade fixed expense for variable expense** : you can pay only when you consume computing resources, and pay only for how much you consume

**#Benefit from massive economies of** **scale**  : By using cloud computing, you can achieve a lower variable cost than you can get on your own.

**#Stop guessing capacity** :You can access as much or as little capacity as you need, and scale up and down as required with only a few minutes

**#Increase speed and agility** :reduce the time to make the resources available to your developers from weeks to just minutes

**#Stop spending money running**

**and maintaining data centers**  :Focus on projects not the infrastructure

**#Go global in minutes**   :Easily deploy your application in multiple regions around the world with just a few clicks

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2)**Charaterstics of cloud** **computing ?**

**#On-demand self-services** : The Cloud computing services does not require any human administrators, user themselves are able to provision,monitor and manage computing resources as needed.

**#Broad network access**  :The Computing services are generally provided over standard networks and heterogeneous devices.

**#Rapid elasticity**  :The Computing services should have IT resources that are able to scale out and in quickly and on as needed basis

**#Resource pooling**   :The IT resource present are shared across multiple applications and 0ccupant in an uncommitted manner. Multiple clients are provided service from a same physical resource.

**#Measured service**   :The resource utilization is tracked for each application and occupant, it will provide both the user and the resource provider with an account of what has been used

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3)**What is private** **cloud , public cloud and hybrid** **cloud ?**

**#Public** **cloud** : Public cloud involves a third-party service provider giving resources and services to customers through the internet.

#Private cloud: Private cloud involves the provision and management of resources and services specifically for a particular company

**#Hybrid** **cloud** : hybrid cloud involves a combination of public and private cloud

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4)**What is** **IAAS , PAAS and** **SAAS ?**

**#IAAS**: It means infrastructure as a service and it is one of the types of cloud computing and it provides infrastructure service

such as networking,storage,servers,and virtualization

**Building** **blog** : IAAS provides **\*Networking \*Storage \*Server \*Virtualization**

Engineer are responsible for **\*****Application,\*****Data,\*****Runtime,\*****Middleware,\*O/S**

**#PAAS**: It means Platform as a service and it is one of the types of cloud computing and it provides platform based service

such as networking,storage,servers,virtualization along O/S,Middleware,Runtime

**Building** **blog** : PAAS provides **\*Networking \*Storage \*Server \*Virtualization \*O/S \*Middleware \*Runtime**

Engineer are only responsible for **\*****Application,\*Data**

**#SAAS**: It means Software as a service and it is one of the types of cloud computing and it provides Almost all services which is required for application

such as networking,storage,servers,virtualization,o/s,middleware,runtime,data,and application

**Building** **blog** : SAAS provides **\*Application \*Data \*Runtime \*Middleware \*O/S \*Virtualization \*Server \*Storage \*Networking**

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5)**S3 Storage classess ?**

Storage classess are classified into 6 types in aws they are **\*Standard \*intelligent tiering \*Standard -IA \*one-zone -IA \*Glacier \*Deep Archive**.The Features of

these classess as shown in below table

**Standard intelligent tiering Standard –IA one-zone -Ia**  **Glacier Archive**

**design for durability :**99.999999% 99.999999% 99.999999% 99.999999% 99.999999% 99.999999%

**design for availability:** 99.99% 99.99% 99.99% 99.95% 99.99% 99.99%

**Availability Zones:** >=3 >=3 >=3 1 >=3 >=3

**min capacity charge**

**per object** : - - 128kb 128kb 40kb 40kb

**min storage duration**

**Charge :** - 30days 30days 30days 90days 180days

**retrievel fee:** - - per GB retrieved per GB retrieved per GB retrieved per GB retrieved

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6)**what is Data** **Pipeline ?**

AWS Data Pipeline is a web service that helps you to move data between different AWS compute and storage services, as well as on-premises data sources,

at specified intervals., you can regularly access your data where it’s stored, transform and process it efficiently transfer the results to AWS services

such as Amazon S3, Amazon RDS.AWS Data Pipeline also allow to move and process data that was previously stored in on-premises

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7)**What** **is Amazon** **SageMaker ?**

Amazon SageMaker is a fully managed machine learning service. With SageMaker, data scientists and developers can quickly and easily build and

train machine learning models,and then directly deploy them into a production-ready hosted environment.

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8)**Amazon Polly ?**

Amazon Polly is a service that turns text into lifelike speech, allowing you to create applications that talk, and build entirely

new categories of speech-enabled products.Polly's Text-to-Speech (TTS) service uses advanced deep learning technologies.

you can build speech-enabled applications that work in many different countries.Amazon Polly offers Neural Text-to-Speech (NTTS) voices that

deliver advanced improvements in speech quality through a new machine learning approach.Neural TTS technology also supports two speaking styles

that allow you to better match the delivery style of the speaker to the application:1)Newscaster reading style 2)Conversational speaking style

Newscaster style uses like news narration and Conversational style used for two ways communications like telephonic type application.

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9)**AWS** **Outposts ?**

AWS Outposts offers you the same AWS hardware infrastructure, services, APIs, and tools to build and run your applications on premises

and in the cloud for a truly consistent hybrid experience compute, storage, database, and other services run locally on Outposts,

and you can access the full range of AWS services available in the Region to build, manage, and scale your on-premises applications

using familiar AWS services and tools.

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10)**explain in detail AWS** **Lambda ?**

AWS Lambda lets you run code without provisioning or managing servers. You pay only for the compute time you consume.

With Lambda, you can run code for virtually any type of application,without administration,just upload the code and remaining

lambda will takes care of everything with high availability .Each application is packaged with Serverless application model tamplate.

There is no additional charge to use the Serverless Application Repository - you only pay for the AWS resources used in the applications you deploy.

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11) **Elastic Container** **Service ?**

Amazon Elastic Container Service is a fully managed container orchestration service. First, you can choose to run your ECS clusters

using AWS Fargate, which is serverless compute for containers.s. Fargate removes the need to provision and manage servers,and

pay for resources per application and improves security through application., it can natively integrate with other services

such as Amazon Route 53, Secrets Manager, AWS Identity and Access Management (IAM), and Amazon CloudWatch providing you a

Familiar experience to deploy and scale your containers. ECS also integrates with AWS App Mesh, which is a service mesh,

to bring rich observability, traffic controls and security features to your applications.

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12) **fargate ?**

AWS Fargate is a serverless, pay-as-you-go compute engine that lets you focus on building applications without managing servers.

AWS Fargate is compatible with both Amazon Elastic Container Service and Amazon Elastic Kubernetes Service.

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13)**AWS Storage** **Gateway ?**

AWS Storage Gateway is a hybrid cloud storage service that gives you on-premises access to virtually unlimited cloud storage.

Customers use Storage Gateway to simplify storage management and reduce costs for key hybrid cloud storage use cases.

These include moving backups to the cloud, using on-premises file shares backed by cloud storage, and providing low latency access to data in

AWS for on-premises applications.

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14) **Amazon** **Aurora ?**

Amazon Aurora is a MySQL and PostgreSQL-compatible relational database built for the cloud,that combines the performance and availability

of traditional enterprise databases with the simplicity and cost-effectiveness of open-source databases.Amazon Aurora is up to five times

faster than standard MySQL databases and three times faster than standard PostgreSQL databases.It provides the security, availability,

and reliability of commercial databases at 1/10th the cost. Amazon Aurora is fully managed by Amazon RDS which automates the time consuming

administration task like hardware provisioning, database setup ,patching and backup. It delivers high performance and availability with up to

15 lowlatency read replicas, point-in-time recovery, continuous backup to Amazon S3, and replication across three Availability Zones.

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15)**what is** **DynamoDB ?**

Amazon DynamoDB is a key-value and document database that delivers single-digit millisecond performance at any scale. It's a fully managed,

multiregion, multimaster, durable database with built-in security, backup and restore, and in-memory caching for internet-scale applications.

DynamoDB can handle more than 10 trillion requests per day and can support peaks of more than 20 million requests per second. Many of the world's

fastest growing enterprises such as Samsung, Toyota, and Capital One depend on the scale and performance of DynamoDB to support their mission-critical workloads.

Hundreds of thousands of AWS customers have chosen DynamoDB as their key-value and document database for mobile, web, gaming, ad tech, IoT,

and other applications that need low-latency data access at any scale. Create a new table for your application and let DynamoDB handle the rest.

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16)**what is DocumentDB ?**

similar to the key value except the keysql values are stored in document written in markup language key like JSON YAML XML to store hierarchies of

data linking document.

use cases- user profile,catlogs,content management

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17) **what is Amazon Athena?**

Athena helps you analyze unstructured, semi-structured, and structured data stored in Amazon S3.Examples include CSV, JSON, or columnar data formats such as

Apache Parquet and Apache ORC. You can use Athena to run ad-hoc queries using ANSI SQL, without the need to aggregate or load the data into Athena.

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18)**explain s3 usecases ?**

Amazon S3 has many usecases including:

**#Storing for internet**   : Amazon S3 is ideal when you want to store application images and videos, and render with faster performance

**#Backup and Disaster** **Recovery** :Amazon S3 is suitable for storing and archiving highly critical data or backup because it is automatically

replicated cross-region, providing maximum availability and durability.

**#Static Website Hosting**  :Amazon S3 stores various static objects. One interesting use case is its ability to host static websites.

**#Security and Compliance** :These features help customers satisfy compliance requirements for virtually every regulatory agency around the world

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19)**Shared Responsibility Model for** **IAM ?**

**shared responsibility on IAM**: users,groups,roles,policies monitoring.

enable Mfa.

rotate all keys often.

use iam tools to apply appropriate permissions.

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20)**Shared Responsibility Model for ec****2 ?**

**Shared responsibility model for ec2**: Security group rules.

operating system patches and updates.

Iam roles assigned to ec2.

software and utilities installed on ec2.

data security on your ec2 instance.

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21)**Shared Responsibility Model for s****3 ?**

**Shared responsibility of S3**: Create an s3 bucket.

Storage of data in bucket.

Bucket policy.

Bucket public access.

Storage classes.

22)**6 pillar Architecture and their design** **principles ?**

Six pillar architecture: CROPSS

**CROPSS** : Cost optimization : Ability to run systems to deliver business at low cost.

Design principles: Adopt consumption model

Measure overall efficiency.

stop spending money.

**Reliability**:Ability of a workload to perform its intended action perfectly when expected to.

**Design principles:**stop guessing capacity.

Automatically recover from failure.

Scale horizontally.

**Operational Excellence**:support development and workloads gain insights and into their operation.

**Design principles**:Anticipate as failure.

make small changes.

perform operations as code.

**Performance** **Efficiency** :The Performance Efficiency pillar includes the ability to use computing r resources efficiently to meet system requirements,

and to maintain that efficiency as demand changes and technologies evolve.

**Design** **Principles** : Go Global in minutes.

Use Serverless architecture.

Do experiment more often.

**Security** : Security pillar includes the ability to protect data, systems, and assets to take advantage of cloud technologies to improve your security.

**Design** **Principles** : Enable traceability.

Apply security at all layers.

Keep people away from data.

Prepeare for security events.

**Sustainability** : sustainability addresses the long-term environmental, economic, and societal impact of your business activities.

**Design** **Principles** : Maximixe utilization

Use managed services.

Establish your sustainability growth.

---------------------------------------------------------------The End----------------------------------------------------------------