Cloud computing overview

Define cloud computing. (BL1)
2. Mention any two benefits of cloud computing. (BL1)
3. What is AWS? (BL1)
4. List two services offered by Microsoft Azure. (BL1)
5. What is Google Cloud Platform used for? (BL2)
6. Define public cloud. (BL1)
7. What is cloud storage? (BL2)
8. Mention two risks associated with cloud computing. (BL2)
9. What is a private cloud? (BL1)
10. Name any two applications of cloud computing in daily life. (BL2)
11. What is scalability in cloud computing? (BL2)
12. Define elasticity in cloud computing. (BL2)
13. Mention any one cloud-based social network. (BL1)
14. What is SaaS? (BL2)
15. List any one online collaboration tool using cloud. (BL1)

Here are the answers short, crisp & exam point wise:

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1. Define cloud computing. (BL1)
Cloud computing is the delivery of computing resources like storage, servers, databases, and applications over the internet on demand.

2. Mention any two benefits of cloud computing. (BL1)

- Cost reduction
- Easy scalability

3. What is AWS? (BL1)
AWS (Amazon Web Services) is a cloud computing platform provided by Amazon offering various cloud services.

4. List two services offered by Microsoft Azure. (BL1)

- Azure Virtual Machines
- Azure SQL Database

5. What is Google Cloud Platform used for? (BL2)
Google Cloud Platform (GCP) is used for deploying, developing, and managing applications and services using Google's cloud resources.

6. Define public cloud. (BL1)
A public cloud is a cloud environment where computing services are provided over the internet and shared by multiple users.

7. What is cloud storage? (BL2)
Cloud storage is a service that allows users to store data remotely on cloud servers and access it through the internet.

8. Mention two risks associated with cloud computing. (BL2)

- Data security/privacy threats
- Service downtime

9. What is a private cloud? (BL1)
A private cloud is a cloud infrastructure dedicated to a single organization only.

10. Name any two applications of cloud computing in daily life. (BL2)

- Google Drive
- Netflix streaming

11. What is scalability in cloud computing? (BL2)
Scalability means the ability to increase or decrease cloud resources based on user demand.

12. Define elasticity in cloud computing. (BL2)
Elasticity is the ability of the cloud to automatically allocate and de-allocate resources as needed to handle changing workloads.

13. Mention any one cloud-based social network. (BL1)
Facebook

14. What is SaaS? (BL2)
Software as a Service (SaaS) is a cloud model where software applications are delivered over the internet on a subscription basis.

15. List any one online collaboration tool using cloud. (BL1)
Google Docs

. What is a hybrid cloud? (BL1)
2. Define on-demand computing. (BL2)
3. What is virtualization? (BL1)
4. What is a hypervisor? (BL2)
5. List two types of virtualization. (BL1)
6. Define cloud service delivery model. (BL2)
7. What is the NIST cloud deployment model? (BL2)
8. Define CPU virtualization. (BL2)
9. What is the difference between SaaS and IaaS? (BL3)
10. What is governance in cloud computing? (BL2)
11. List two cloud deployment models. (BL1)
12. What is the traditional software model? (BL1)
13. Define operating system virtualization. (BL1)
14. What are key drivers to adopting the cloud? (BL2)
15. Mention any one barrier to cloud adoption. (BL1)

Here are the answers:

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1. What is a hybrid cloud? (BL1)
A hybrid cloud is a combination of public cloud and private cloud working together to share data and applications.

2. Define on-demand computing. (BL2)
On-demand computing means users can access computing resources instantly whenever needed without manual provisioning.

3. What is virtualization? (BL1)
Virtualization is the process of creating virtual versions of hardware, servers, storage, or networks.

4. What is a hypervisor? (BL2)
A hypervisor is software that creates, manages, and runs multiple virtual machines on a single physical system.

5. List two types of virtualization. (BL1)

- Server virtualization
- Storage virtualization

6. Define cloud service delivery model. (BL2)
A cloud service delivery model defines how cloud services are delivered to users, such as IaaS, PaaS, and SaaS.

7. What is the NIST cloud deployment model? (BL2)
NIST cloud deployment model includes Public Cloud, Private Cloud, Community Cloud, and Hybrid Cloud as defined by NIST standards.

8. Define CPU virtualization. (BL2)
CPU virtualization is the technique of dividing a physical CPU into multiple virtual CPUs so that multiple VMs can share processing power.

9. What is the difference between SaaS and IaaS? (BL3)

- SaaS provides ready-to-use software applications over the internet.
- IaaS provides virtualized hardware infrastructure like servers, storage, and networking for users to build systems.

10. What is governance in cloud computing? (BL2)
Governance in cloud computing refers to policies, controls, and procedures to manage cloud usage, cost, risk, and compliance.

11. List two cloud deployment models. (BL1)

- Public cloud
- Private cloud

12. What is the traditional software model? (BL1)
Traditional software model is where software is installed, maintained, and run locally on the user's own computer or server.

13. Define operating system virtualization. (BL1)
Operating system virtualization allows multiple isolated user-space instances (containers) to run on a single physical OS kernel.

14. What are key drivers to adopting the cloud? (BL2)

- Cost savings
- Faster scalability & flexibility

15. Mention any one barrier to cloud adoption. (BL1)
Data security concerns.

Define infrastructure security. (BL1)
2. What is host-level security? (BL1)
3. What is data security in cloud computing? (BL1)
4. What is identity and access management (IAM)? (BL2)
5. Mention any one IAM protocol. (BL1)
6. What is cloud federation? (BL2)
7. Define token-based authorization. (BL1)
8. What are trust boundaries? (BL2)
9. What is application-level security? (BL1)
10. What is data mitigation? (BL2)
11. List two IAM challenges in the cloud. (BL2)
12. What is cloud authorization management? (BL2)
13. Define encryption in cloud storage. (BL2)
14. Mention two security threats in cloud. (BL2)
15. What is role-based access control? (BL2)

Here are the short, precise answers:

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1. Define infrastructure security. (BL1)

Infrastructure security refers to protecting the underlying hardware, network, servers, and other physical components that support cloud services.

2. What is host-level security? (BL1)

Host-level security is securing the individual machines (servers or virtual machines) which run cloud applications.

3. What is data security in cloud computing? (BL1)

Data security in cloud computing ensures that data stored, processed, and transmitted in the cloud is protected from unauthorized access, modification, and loss.

4. What is identity and access management (IAM)? (BL2)

IAM is a framework that ensures the right individuals have the right level of access to cloud resources at the right time.

5. Mention any one IAM protocol. (BL1)

OAuth (or SAML or OpenID Connect — any one acceptable)

6. What is cloud federation? (BL2)

Cloud federation allows multiple cloud service providers to interconnect and share resources across cloud boundaries securely.

7. Define token-based authorization. (BL1)

Token-based authorization is a method where users are given a digital token to prove identity and access services without repeatedly logging in.

8. What are trust boundaries? (BL2)

Trust boundaries specify points in a system where the level of trust changes, requiring additional security controls.

9. What is application-level security? (BL1)

Application-level security protects software applications from threats and vulnerabilities such as SQL injection, XSS, and insecure APIs.

10. What is data mitigation? (BL2)

Data mitigation refers to techniques used to reduce risks and damage caused by data breaches, loss, or misuse.

11. List two IAM challenges in the cloud. (BL2)

- Managing multiple user identities across clouds
- Ensuring proper access control policies at scale

12. What is cloud authorization management? (BL2)

Cloud authorization management defines and enforces rules determining who is allowed to access which cloud resources and under what conditions.

13. Define encryption in cloud storage. (BL2)

Encryption in cloud storage is the process of encoding stored data so that only authorized users with a decryption key can read it.

14. Mention two security threats in cloud. (BL2)

- Data breaches

- Denial of Service (DoS) attacks

15. What is role-based access control? (BL2)

Role-based access control (RBAC) provides permissions based on user roles within an organization instead of individual identity.

. What is SOA? (BL1)
2. Define web services. (BL1)
3. What is SOAP? (BL1)
4. What is REST? (BL1)
5. What is a microservice? (BL2)
6. List one advantage of REST over SOAP. (BL2)
7. Define application architecture. (BL1)
8. What is statelessness in microservices? (BL2)
9. What is JSON used for in web services? (BL2)
10. Name any one cloud-based application using microservices. (BL1)
11. What is service discovery? (BL2)
12. Define service orchestration. (BL2)
13. What is API Gateway? (BL2)
14. Mention one use case of microservices in e-commerce. (BL2)
15. What is scalability in microservices? (BL2)

Here are the answers:

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1. What is SOA? (BL1)

SOA (Service Oriented Architecture) is an architectural style where software functions are provided as reusable services over a network.

2. Define web services. (BL1)

Web services are software components that communicate over the internet using standardized protocols to exchange data between applications.

3. What is SOAP? (BL1)

SOAP (Simple Object Access Protocol) is a protocol used for exchanging structured data in web services using XML.

4. What is REST? (BL1)

REST (Representational State Transfer) is an architectural style for building web services using standard HTTP methods.

5. What is a microservice? (BL2)

A microservice is a small, independent, deployable service that performs a specific business function and can run separately.

6. List one advantage of REST over SOAP. (BL2)

REST is simpler and faster than SOAP because it uses lightweight formats like JSON instead of heavy XML.

7. Define application architecture. (BL1)

Application architecture refers to the structure and design of how components of an application interact and work together.

8. What is statelessness in microservices? (BL2)

Statelessness means the microservice does not store client session data internally; each request is processed independently.

9. What is JSON used for in web services? (BL2)

JSON is used to format and transmit data between client and server because it is lightweight and easy to parse.

10. Name any one cloud-based application using microservices. (BL1)

Netflix.

11. What is service discovery? (BL2)

Service discovery is the process where microservices find and communicate with each other dynamically without hard-coded IP addresses.

12. Define service orchestration. (BL2)

Service orchestration coordinates multiple services to work together in a workflow to achieve a larger business process.

13. What is API Gateway? (BL2)

An API Gateway is a single entry point that manages, secures, routes, and monitors requests to various microservices.

14. Mention one use case of microservices in e-commerce. (BL2)

Order management microservice (handles order placing, tracking, updates separately).

15. What is scalability in microservices? (BL2)

Scalability in microservices refers to the ability to independently increase resources for individual services based on load or demand.

What is Docker? (BL1)
2. Define container. (BL1)
3. What is Kubernetes? (BL1)
4. What is container orchestration? (BL2)
5. Mention one difference between VMs and containers. (BL2)
6. What is a Docker image? (BL2)
7. What is a Pod in Kubernetes? (BL2)
8. What is a container registry? (BL2)
9. Define scaling in Kubernetes. (BL2)
10. What is a YAML file used for? (BL2)
11. Name one cloud provider that supports Kubernetes. (BL1)
12. What is container deployment? (BL2)
13. Define CI/CD. (BL2)
14. Mention one benefit of containerization. (BL2)
15. What is a Dockerfile? (BL2)

Here are short, exam-focused answers:

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1. What is Docker? (BL1)

Docker is a platform used to build, ship, and run applications inside containers.

2. Define container. (BL1)

A container is a lightweight, isolated environment that packages an application and its dependencies together.

3. What is Kubernetes? (BL1)

Kubernetes is an open-source platform used to manage, deploy, and control containerized applications at scale.

4. What is container orchestration? (BL2)

Container orchestration is the automated management of container deployment, scaling, networking, and monitoring.

5. Mention one difference between VMs and containers. (BL2)

Containers share the host OS kernel, while VMs require a full separate OS for each virtual machine.

6. What is a Docker image? (BL2)

A Docker image is a read-only template used to create Docker containers.

7. What is a Pod in Kubernetes? (BL2)

A Pod is the smallest deployable unit in Kubernetes that can contain one or more containers running together.

8. What is a container registry? (BL2)

A container registry is a storage location where container images are stored, managed, and retrieved.

9. Define scaling in Kubernetes. (BL2)

Scaling in Kubernetes means increasing or decreasing the number of Pods based on application demand.

10. What is a YAML file used for? (BL2)

A YAML file is used in Kubernetes to define configuration details for deployments, services, and other cluster objects.

11. Name one cloud provider that supports Kubernetes. (BL1)

Google Cloud Platform (GCP)
(also AWS & Azure are valid)

12. What is container deployment? (BL2)

Container deployment is the process of running containerized applications on servers using orchestration tools.

13. Define CI/CD. (BL2)

CI/CD stands for Continuous Integration and Continuous Deployment, used to automate building, testing, and deploying code.

14. Mention one benefit of containerization. (BL2)

Portability — containers can run anywhere with the same environment.

15. What is a Dockerfile? (BL2)

A Dockerfile is a script containing instructions to build a Docker image.