Assignment 01

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Subject - Cloud computing

Part A - Multiple Choice Questions

Ques A1 (a) Infrastructure as a Service (IaaS)
Ques A2 (b) Sharing of computing resources among multiple users or tenants.
Ques A3 (b) Offers development platform with tools for building & deploying appl
Ques A4 (c) Pre configured virtual machine image with specific software stack.
Ques A5 (c) Software as a service (SaaS)
Ques A6 (c) HTTP (HyperText Transfer Protocol)
Ques A7 (c) Processing and Execution
Ques A8 (c) Containers
Ques A9 (c) A hardware and software platform that creates and runs virtual machines.
Ques A10 (b) Hypervisors

Part B - Descriptive Questions

Ques B1 Public cloud v/s Private cloud v/s Hybrid clouds

Public cloud	Private cloud	Hybrid cloud
① Services are provided over the internet to general public	① Services are used exclusively by a single organisations.	① Combination of private and public clouds
② Resources are owned and operated by a third party cloud service providers.	② Infrastructure can be managed by the organization or a third party	② Allows data and applications to be shared between them.
③ Amazon Web Services, Microsoft Azure, Google Cloud Platform	③ Offer more control & customization.	③ Provides flexibility & optimization of existing infrastructure.
	④ Private Data centers, On premises servers.	④ Public clouds for scalable tasks & private cloud for sensitive data

Ques B2

Infrastructure as a service (IaaS)

→ Provides virtualized computing resources over the internet.
→ Users can rent virtual machines, storage, and networks.
→ Example Amazon EC2 instances, Microsoft Azure Virtual Machines

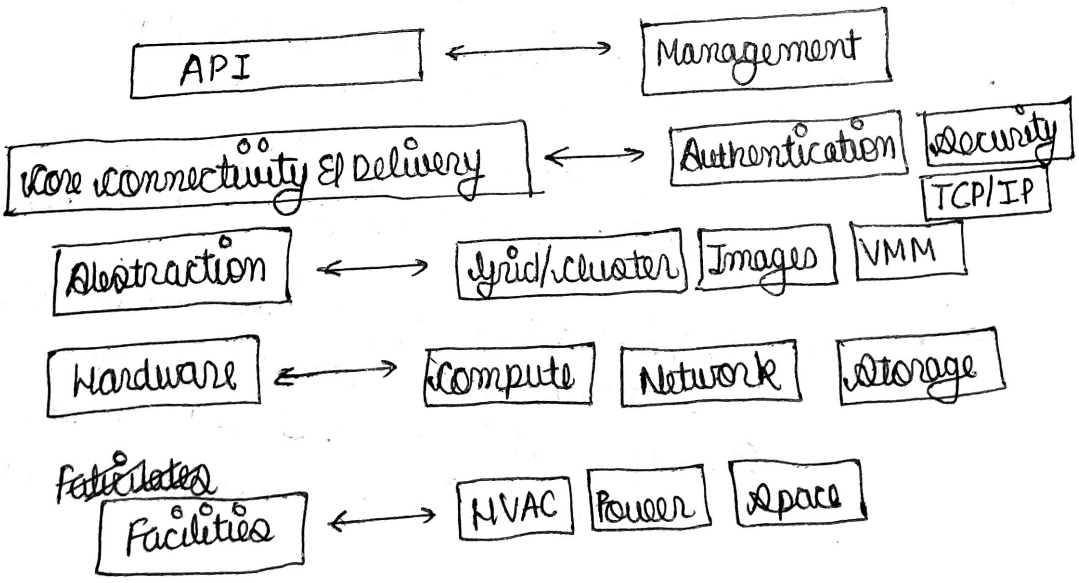
Platform as a Service (PaaS)

→ Offers a development platform with tools for building and and deploying applications.
→ Developer can focus on writing code without even have to

worry about the underlying architecture.
→ For example, Google App Engine, Heroku, Github, Bitbucket

Software as a Service (SaaS)
→ Delivers ready-to-use software applications over the internet on a subscription basis
→ Users can access software through a web browser without installation.
Examples: Salesforce, Microsoft 365, Chat GPT, Bard

Ques 83: The cloud computing stack represents the architectural layers and components that form the foundation of cloud computing. This stack facilitates the discovery & delivery of on-demand services and enables composability, allowing the construction of applications from modular components. The following is a detailed overview of the cloud computing stack.



① client Layer (Frontend): web browsers, application programming interface. or devices used by the clients.

② Cloud Layer (Backend): physical and virtualized resources as servers, storage & networking infra.

③ Service Layer: Software as a service, Infra as a service, Platform as a service

④ Composability Layer: Modular components with characteristics like modularity and statelessness also various protocols. for facilitating communicating and interoperability.

⑤ Communication Protocols: protocols using XML as messaging format. Soap (Simple Object Access Protocol) as object model & Web Description Language (WSDL) for transaction management. services

Ques 14

Key Elements in Cloud Infrastructure

① Servers: Servers are virtualized instances that provide processing power. For example virtual machines & containers.

② Storage: Cloud storage is a persistent storage solution. For example: Object Storage, Block Storage and File Storage.

③ Networking: Virtual Networks which enable communication between various cloud resources.
For examples: Load Balancers, Firewalls and the various Virtual Private Networks (VPNs)

④ Compute Nodes : Compute Nodes are the physical or virtual machines responsible for processing and executing tasks, for example: physical servers, virtual machines, containers.

⑤ Data Centers : Data centers facilitates that manage cloud infrastructure and ensure reliability, redundancy & security.

Ans 05 : characteristics of cloud platform

① Scalability : Allows applications to scale horizontally or vertically based on demand.

② Flexibility : support multiple programming languages & frameworks.

③ Resource Efficiency : efficient utilization of resources through virtualization and containers.

④ Automation : enables automated deployment, scaling & management of applications.

⑤ Pay as you go Pricing : users pay for the resources consumed, promoting cost efficiency.

⑥ Collaboration : facilitates collaboration among development teams.

⑦ Global Reach : provides the ability to deploy applications globally.

⑧ Managed services : Offers pre-built, managed services for various functions.