Cloud Computing Assignment 1

1- What is cloud computing?

ANS- Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale. You typically pay only for cloud services you use, helping you lower your operating costs, run your infrastructure more efficiently, and scale as your business needs change.

2-Describe cloud computing deploy model.

ANS- There are four types of deployment model.

- Public Cloud
- Private Cloud
- Community Cloud
- Hybrid Cloud

  - **Public Cloud-** this cloud is perfect for organizations with growing and fluctuating demands. It also makes a great choice for companies with low-security concerns. Thus, you pay a cloud service provider for

networking services, computer virtualization and storage available on the public internet.

- **Benefits of Public cloud-** Minimal Investment, No hardware setup, No infrastructure Management.

- **Limitations of Public cloud-** Data Security and Privacy Concerns, Reliability Issues.

- **Private Cloud- You** understand what public cloud could offer you. You need to know what private cloud can do. Companies that look for cost efficiency and greater control over data and resources will find the private

- **Benefits of private cloud-** Data privacy, Security, Supports legacy systems.

- **Limitations of private cloud-** Higher cost, Fixed scalability, High maintenance.

- **Community Cloud-** The community cloud operates in a way that is similar to the public cloud. There's just one difference – it allows access to only a specific set of users who share common objectives and use case. This type of deployment model of cloud computing is managed and hosted internally or by a third-party vendor.

- **Benefits of community cloud-** smaller investment, Setup Benefits.

- **Limitations of community cloud-** Shared Resources, not as popular.

- **Hybrid Cloud-** As the name suggests, a hybrid cloud is a combination of two or more cloud architectures, while each model is the hybrid cloud functions differently, it is all part of the same architecture.

- **Benefits of hybrid cloud-** cost-effectiveness, security, flexibility.

- **Limitations of hybrid cloud-** complexity, specific use case.

3-What are components of cloud computing?

ANS- Main Components of cloud computing

1. Front End (Client Side)- this is what the user interacts with. It includes (Web browsers, Mobile apps, thin clients, APIs/CLI tools).
2. Back End (Cloud Side) – this is the actual cloud infrastructure. It includes (Servers, Storage systems, Virtual machines, Databases, Applications, Networking devices).
3. Cloud infrastructure- the physical and virtual resources of the cloud. It includes (physical servers, virtualization, Data centers, Storage hardware, Network equipment).
4. Virtualization- a key technology in cloud computing (creates virtual machines (VMs), it allows multiple OS to run on one physical server, Improves resource utilization).
5. Storage- used to store data in the cloud. It includes (object storage (AWS S3), Block Storage (EBS), File storage (EFS)).

6. Networking- connects cloud resources securely. It includes (virtual network (VPC, VNet), load balancers, firewalls, DNS, internet gateways).
7. Cloud services Models- how cloud services are delivered. It includes (IaaS (VMs, storage, network), PaaS (OS, runtime, DB), SaaS (software (email, CRM)).
8. Management And Orchestration- controls and monitors cloud resources. It includes (AWS CloudWatch, Azure Monitor, Terraform).
9. Security- protects cloud data and resources. It includes (IAM, encryption, firewalls, compliance policies).

4-cloud computing advantages and disadvantages of Cloud Computing?

ANS- Advantages of Cloud Computing.

- Cost efficiency
- Scalability and Elasticity
- High Availability
- Accessibility
- Automatic Updates
- Disaster Recovery and Backup
- Security

- Performance
- Environmentally friendly
- Faster Deployment

➢ Disadvantages of cloud computing.

- Internet Dependency
- Security and privacy concerns
- Downtime Risk
- Limited control
- Vendor Lock-in
- Compliance Issues
- Cost Overruns