**Cloud Computing**

1. What is cloud computing? Explain with an example.
2. What are the three main service models of cloud computing?
   * IaaS, PaaS, SaaS — definitions and examples like AWS EC2, Heroku, Google Docs.
3. What are the four deployment models in cloud computing?
   * Public Cloud, Private Cloud, Hybrid Cloud, Community Cloud
4. What is the difference between IaaS, PaaS, and SaaS? Give examples.
5. What are the benefits of cloud computing?
   * *Scalability, cost-efficiency, flexibility, disaster recovery.*
6. What are the challenges or disadvantages of cloud computing?
   * *Security, downtime, data privacy, vendor lock-in.*
7. What is virtualization and why is it important in cloud computing?
8. What is the difference between virtualization and containerization?
   * *Include tools like VirtualBox (VMs) vs Docker (containers).*
9. What is scalability in cloud computing? What is auto-scaling?
10. What is elasticity in cloud computing? How is it different from scalability?
11. What is serverless computing? Give an example.
    * *E.g., AWS Lambda*
12. What is a hypervisor? Differentiate between Type 1 and Type 2.
13. What are some examples of cloud platforms and providers?
    * *Amazon AWS, Microsoft Azure, Google Cloud Platform (GCP), IBM Cloud.*
14. What is the difference between cloud computing and traditional computing?
15. What is a virtual machine? How is it used in cloud computing?
16. What is a container? What are its advantages?
    * *Lightweight, faster than VMs, portable across environments.*
17. How is data secured in the cloud?
    * *Encryption, authentication, access control, firewalls.*
18. What is multi-tenancy in cloud computing?
    * *One software instance serves multiple users/customers.*
19. What is the role of APIs in cloud computing?
    * *APIs allow cloud services to be programmatically controlled or accessed.*
20. What are the differences between public and private cloud?