

PART 1: CONSOLIDATED QUESTION & ANSWER BANK

SECTION A: 2-MARK QUESTIONS (ANSWER IN ~50–80 WORDS EACH)

1. **What is cloud computing?** (2019, 2021, 2023)

Cloud computing is the delivery of computing services like servers, storage, databases, networking, software, and analytics over the internet. It enables on-demand access to resources, offering scalability, flexibility, and cost savings. Users can pay per usage without maintaining physical infrastructure.

2. **Define virtualization.** (2019, 2020, 2022)

Virtualization is the process of creating a virtual version of physical components such as servers, storage devices, networks, or operating systems. It enables multiple systems to run on a single physical hardware, increasing resource efficiency and scalability.

3. **What is Infrastructure as a Service (IaaS)?** (2020, 2022)

IaaS is a cloud service model that provides virtualized computing infrastructure over the internet. It offers resources like virtual machines, storage, and networks. Users manage the OS and applications while the provider manages the infrastructure.

4. **Define Platform as a Service (PaaS).** (2020, 2023)

PaaS is a cloud computing model where a third-party provider delivers hardware and software tools (mainly for application development) over the internet. It allows developers to build, test, and deploy applications without managing underlying infrastructure.

5. **What is Software as a Service (SaaS)?** (2019, 2021)

SaaS is a cloud computing service model where software applications are delivered over the internet. Users access the software via web browsers, and the provider handles maintenance, updates, and infrastructure. Examples include Gmail and Google Docs.

6. **Define public cloud.** (2020, 2023)

A public cloud is a cloud computing environment where services are offered over the internet to multiple customers by a third-party provider. Resources are shared, making it cost-effective and scalable. Examples include AWS, Azure, and Google Cloud.

7. **What is a private cloud?** (2021, 2022)

A private cloud is a cloud computing environment dedicated to a single organization. It offers greater control, security, and customization than public clouds but may require higher capital and operational investment.

8. **What is hybrid cloud?** (2020, 2023)

Hybrid cloud is a cloud computing environment that combines public and private clouds,

enabling data and application sharing between them. It offers flexibility, scalability, and optimized workload distribution while maintaining sensitive data on private servers.

9. **What is grid computing?** (2019, 2021)

Grid computing involves connecting multiple computers across a network to work together on a single task. It uses distributed resources to solve complex problems by dividing tasks into smaller parts processed in parallel.

10. **Define utility computing.** (2020, 2022)

Utility computing is a service provisioning model where computing resources are provided and billed like utilities (e.g., electricity). Users pay based on usage, and services scale on demand without owning infrastructure.

11. **What is RAID?** (2020)

RAID (Redundant Array of Independent Disks) is a data storage virtualization technology that combines multiple physical disk drives into one logical unit to improve performance, fault tolerance, or both. Common levels include RAID 0, 1, 5, and 10.

12. **Define POST.** (2022)

POST (Power-On Self-Test) is a diagnostic process run by a computer's firmware when it is powered on. It checks the hardware components such as RAM, keyboard, and storage devices to ensure everything is functioning correctly before booting the operating system.

13. **What is a TGT?** (2023)

TGT stands for Ticket Granting Ticket. It is used in Kerberos authentication systems to allow users to obtain session tickets for accessing different services within the network without re-entering credentials.

14. **Define Active Directory.** (2021, 2023)

Active Directory (AD) is a Microsoft directory service that manages permissions and access to networked resources. It stores information about users, computers, and other resources, allowing centralized control and security.

15. **What is a client?** (2019, 2021)

A client is a computer or application that accesses services provided by a server in a client-server architecture. Clients request data or functions from the server, which processes and returns the response.

16. **What is NTFS?** (2020, 2022)

NTFS (New Technology File System) is a file system developed by Microsoft for Windows.

It provides high security, supports large files, file compression, and permissions, making it suitable for modern storage needs.

17. What is a security boundary? (2022)

A security boundary is a defined border within which security controls and trust levels are enforced. It separates systems or domains with different security requirements to control access and data flow.

18. Define encryption. (2019, 2021)

Encryption is the process of converting plaintext into ciphertext using algorithms and keys to protect data from unauthorized access. It ensures confidentiality during data storage and transmission.

19. What is a directory? (2020, 2023)

A directory is a structured data repository that stores information about network resources such as users, groups, and devices. It helps manage identity and access across systems.

20. What is LDAP? (2022)

LDAP (Lightweight Directory Access Protocol) is an application protocol used to access and manage directory information over an IP network. It supports centralized user management and authentication.

21. What is cloud service deployment model? (DEC 2022) Cloud service deployment models define how cloud services are made available to users. The main models include public cloud, private cloud, hybrid cloud, and community cloud. Each varies in terms of control, security, and scalability.

22. What is kernel? (MAY 2021) The kernel is the core component of an operating system. It manages system resources like CPU, memory, and devices, acting as a bridge between hardware and software.

23. Define BIOS. (DEC 2020) BIOS (Basic Input/Output System) is firmware that initializes and tests hardware components during the booting process and loads the operating system from storage into memory.

24. What is CMOS? (DEC 2019) CMOS (Complementary Metal-Oxide Semiconductor) is a small battery-powered memory that stores BIOS settings like system time and hardware configuration in a computer.

25. What is system bus? (DEC 2022) A system bus is a communication pathway that connects the CPU with memory and other components. It carries data, control signals, and addresses between system parts.

26. **What is a motherboard?** (DEC 2021) A motherboard is the main circuit board of a computer. It connects the CPU, RAM, storage devices, and peripherals, allowing communication between all components.
27. **Define AGP.** (DEC 2020) AGP (Accelerated Graphics Port) is a high-speed interface developed by Intel for attaching a graphics card to a computer's motherboard, enabling faster video rendering.
28. **What is VGA?** (DEC 2019) VGA (Video Graphics Array) is a display standard used for video output. It refers to both a resolution format and the physical 15-pin connector used in monitors.
29. **What is FAT?** (DEC 2020) FAT (File Allocation Table) is a file system used for organizing and managing files on a disk. It tracks where files are stored and is used in USBs and older Windows systems.
30. **What is a device driver?** (DEC 2021) A device driver is software that allows the operating system to communicate with hardware devices like printers, keyboards, or graphic cards.
31. **What is a server?** (JUN 2023)
A server is a computer or software system that provides services, data, or resources to other computers (clients) on a network. It can host applications, websites, databases, and more, serving requests from multiple clients simultaneously.
32. **What is multitasking?** (DEC 2021)
Multitasking refers to the ability of an operating system to run multiple processes simultaneously. It enables efficient CPU usage by switching between tasks quickly, giving the illusion of parallel execution.
33. **What is cloud bursting?** (DEC 2020)
Cloud bursting is a hybrid cloud configuration in which an application runs in a private cloud or data center but bursts into a public cloud when the demand for computing capacity spikes.
34. **What is SSH?** (DEC 2022)
SSH (Secure Shell) is a cryptographic network protocol used for securely accessing and managing network devices over an unsecured network. It ensures encrypted communication for tasks like remote login and file transfer.
35. **What is DNS?** (MAY 2021)
DNS (Domain Name System) translates human-readable domain names (like `www.example.com`) into IP addresses that computers use to identify each other on networks.
36. **What is DHCP?** (DEC 2019)
DHCP (Dynamic Host Configuration Protocol) is a network protocol that automatically assigns IP addresses and other configuration details to devices on a network, reducing manual configuration.
37. **What is an IP address?** (JUN 2022)
An IP address is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. It identifies and locates devices.
38. **What is subnetting?** (DEC 2022)
Subnetting is the process of dividing a large IP network into smaller, more manageable sub-networks or subnets. It improves routing efficiency and enhances network security.

39. What is a firewall? (DEC 2021)

A firewall is a network security system that monitors and controls incoming and outgoing traffic based on predetermined security rules. It acts as a barrier between a trusted network and an untrusted one.

40. What is a hypervisor? (DEC 2020)

A hypervisor is software that creates and manages virtual machines by separating the underlying physical hardware from the operating systems. Types include Type 1 (bare-metal) and Type 2 (hosted).
