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RV UNIVERSITY
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School of Computer Science and Engineering

B.Tech (Hons.)
CIE-1 Answer Scheme (Set 1)
Academic Year 2024-2025

Course: Cloud Computing and Big Data	Course Code: CS2500	Semester: IV

Sl. No.	Answers and Mark distribution	Marks	L1-L6	CO
1.	Identify the cloud computing characteristic that allows resources to be automatically provisioned and released as needed to quickly scale up or down in response to varying workloads. **Answer: C) Rapid elasticity [1M]**	1	L2	CO1
2.	Identify the cloud deployment model that requires collaborative and distributive maintenance. **Answer: C) Community Cloud [1M]**	1	L2	CO1
3.	Recall the aspect of cloud computing that primarily ensures service reliability, defines acceptable performance levels, and outlines penalties or costs associated with downtime. **Answer: B) Service-Level Agreement [1M]**	1	L1	CO1
4.	Identify the cloud service model that allows users to manage the operating system and runtime environment. **Answer: Infrastructure as a Service (IaaS) [1M]**	1	L2	CO1
5.	Recall the type of hypervisor that is installed directly on top of a physical server and its underlying hardware. **Answer: A) Type 1 Hypervisor [1M]**	1	L1	CO2
6.	Select the correct statement about the performance of hypervisors. **Answer: B) Bare metal hypervisors perform slightly better than hosted hypervisors. [1M]**	1	L3	CO2
7.	Identify the main advantage of using virtual machines for software testing and development. **Answer: D) Isolation of testing environments from the host system. [1M]**	1	L2	CO2
8.	Identify which of the following is not a benefit of server virtualization. **Answer: C) Increased dependency on virtualization management software**	1	L3	CO2
9.	Identify the primary goal of Network Function Virtualization (NFV). **Answer: B) To decouple network functions from proprietary hardware and run them as software on virtualized infrastructure**	1	L2	CO2
10.	Identify the correct description of desktop virtualization. **Answer: B) Hosting user desktops on a centralized server while allowing remote access**	1	L2	CO2

L1- Remember, L2- Understand, L3 – Apply, L4- Analyse, L5 – Evaluate, L6 – Create

Sl. No.	PART B
	Blinkit, a quick-commerce company, operates multiple warehouses across a city. They want to host a web application to collect and process inventory data locally at each warehouse. The system must ensure that if a product runs out of stock, it is immediately marked as "out of stock" on their platform to prevent customer dissatisfaction. Additionally, the collected data should be centrally analyzed for business improvements, ensuring scalability, real-time data access, and optimal performance. **Analyse the given scenario and design a two-layer architecture using suitable computing paradigms. Justify your choices.** **Answer:**

Criteria	Marks	Details
Correct identification of computing paradigms		Edge Computing and Cloud Computing

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CIE-1 Answer Scheme (Set 2)

Academic Year 2024-2025

Course: Cloud Computing and Big Data	Course Code: CS2500	Semester: IV

Sl. No.	Answers and Mark distribution	Marks	L1-L6	CO
1.	Identify the cloud computing characteristic that involves combining resources to serve multiple users, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. **Answer: B) Resource pooling [1M]**	1	L2	CO1
2.	Identify the type of computing that involves two or more tightly coupled computers working together to perform tasks as a single system. **Answer: D) Cluster Computing [1M]**	1	L2	CO1
3.	Identify the computing layer that serves as a computational structure between the cloud and data-producing devices. **Answer: C) Fog Computing[1M]**	1	L2	CO1
4.	Identify the major challenge of cloud computing related to storing sensitive business data on third-party infrastructure. **Answer: B) Security and privacy concerns [1M]**	1	L2	CO1
5.	Identify which of the following is not a benefit of virtualization. **Answer: D) Runs on a single operating system [1M]**	1	L2	CO2
6.	Recall the component most commonly used for managing resources in every virtual system. **Answer: C) Virtual Machine Monitor [1M]**	1	L1	CO2
7.	Identify the component in a traditional network device that provides Layer 2 and Layer 3 functions to create data paths within a network. **Answer: B) Control Plane [1M]**	1	L2	CO2
8.	Select the correct statement about native hypervisors: **Answer: B) They run directly on hardware without an underlying operating system. [1M]**	1	L3	CO2
9.	Recall the reason why application virtualization enhances security. **Answer: B) It isolates applications from the underlying OS**	1	L1	CO2
10.	Identify the network architecture that allows dynamic management and control of network traffic through a centralized system. **Answer: B) Software-Defined Networking (SDN)**	1	L2	CO2
Sl. No.	**PART B**			

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.	RV University is developing a new online learning platform to host courses, manage student data, and provide virtual classrooms. The platform needs to be accessible to students and faculty from anywhere, and the university wants to minimize the cost of maintaining physical servers. They also want the flexibility to scale resources up or down based on demand (e.g., during exam periods or admission seasons). Additionally, the university wants to ensure that sensitive student data is stored securely and complies with data protection regulations. **Analyse the given scenario and identify the most suitable cloud deployment model and cloud service model. Justify your choices.** **Answer:** Identification of Cloud Deployment Model: Correctly identifies as Hybrid Cloud [Public Cloud + Private Cloud] Identification of Cloud Service Model Correctly identifies as PaaS (Platform as a Service)

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B.Tech (Hons.)
CIE-1 Answer Scheme (Set 3)
Academic Year 2024-2025

Course: Cloud Computing and Big Data	Course Code: CS2500	Semester:

Sl. No.	Answers and Mark distribution	Marks	L1-L6
1.	Identify the cloud computing characteristic that allows users to provision and manage computing resources automatically without requiring human intervention from the service provider. **Answer: A) On-demand self-service [1M]**	1	L2
2.	Identify the cloud deployment model that is dedicated to a single organization, offering more control and security over resources. **Answer: B) Private Cloud [1M]**	1	L2
3.	Identify the cloud computing challenge where a customer becomes dependent on a single cloud service provider, making it difficult to migrate services or data to another provider without substantial cost or effort. **Answer: B) Vendor Lock-In [1M]**	1	L2
4.	Identify the cloud service model that refers to the delivery of any service over the internet, where a wide range of services like software, infrastructure, or platforms are provided as a service. **Answer: C) Anything as a Service (XaaS) [1M]**	1	L2
5.	Recall the software-defined computer that runs on a physical machine, having its own independent resources like CPU, memory, and storage. **Answer: D) Virtual Machine (VM) [1M]**	1	L1
6.	Identify the component in a traditional network device that is responsible for the real-time forwarding of user traffic based on precomputed Layer 2 and Layer 3 decisions. **Answer: C) Data Plane [1M]**	1	L2
7.	Select the correct statement about Hypervisors and Virtual Machines (VMs): **Answer: B) From a VM's standpoint, there is no distinction between a physical and virtualized environment. [1M]**	1	L3
8.	Identify the primary goal of Software-Defined Networking (SDN). **Answer: A) To centralize network control and improve programmability [1M]**	1	L2
9.	Recall the reason why storage virtualization enhances space utilization and improves the management of unorganized data and resources. **Answer: D) It consolidates multiple storage devices into a single logical pool for efficient allocation. [1M]**	1	L1
10.	Identify the key difference between application virtualization and desktop virtualization. **Answer: C) Application virtualization delivers individual applications to users, while desktop virtualization provides a complete virtual desktop environment, including the OS and applications. [1M]**	1	L2

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Box8, a rapidly growing cloud kitchen brand, operates multiple kitchen hubs across a city, preparing and delivering food exclusively through online platforms. It needs an efficient Order and Inventory Management System. Each kitchen manages its own inventory of ingredients, and the system must ensure that if a key ingredient runs out, menu items that require it are immediately marked as "unavailable" to prevent order cancellations and customer dissatisfaction. To optimize operations, Box8 wants to locally process inventory and order data at each kitchen while ensuring that all data is centrally analyzed to improve demand forecasting, supplier management, and menu optimization. The system should provide real-time updates, scale efficiently as new kitchens open, and ensure seamless performance during peak hours.

Analyse the given scenario and design a two-layer architecture using suitable computing paradigms. Justify your choices.

Answer:

Correct identification of computing paradigms		Edge Computing and Cloud Computing