



**RNS INSTITUTE OF TECHNOLOGY**

**Autonomous Institution Affiliated to VTU**

**Assignment 2: CLOUD COMPUTING**

## **University Question Bank**

*A compilation of important questions for review*

### **Question 1:**

**6 Explain how cloud computing provides solution for On-Demand and Dynamic Scaling?**

Answer: 

## ## Exam

- Answers:

**\*\*1. Different Types of Hardware Virtualization Techniques:\*\***

\* **\*\*Full Virtualization:\*\*** Creates a complete virtual machine with its own operating system, mimicking a physical machine. This allows running different operating systems on the same physical hardware.

**\*\*Paravirtualization:\*\*** Modifies the guest operating system to work directly with the hypervisor, improving performance compared to full virtualization.

**\*\*Hardware-Assisted Virtualization (HAV):\*\*** Uses specialized hardware features to enhance performance and efficiency of virtualization. This allows for faster context switching and resource allocation.

**\*\*2. Cloud Computing Platforms and Technologies:\*\***



## **RNS INSTITUTE OF TECHNOLOGY**

**Autonomous Institution Affiliated to VTU**

### **Assignment 2: CLOUD COMPUTING**

\* **Infrastructure as a Service (IaaS):** Provides virtualized computing resources like servers, storage, and networking, allowing users to manage their own operating systems and applications. Examples include AWS EC2, Azure Virtual Machines, and Google Compute Engine.

\* **Platform as a Service (PaaS):** Offers a platform for developing and deploying applications, handling infrastructure and operating system management. Examples include AWS Elastic Beanstalk, Google App Engine, and Heroku.

\* **Software as a Service (SaaS):** Delivers software applications over the internet, managed by the provider. Examples include Google Workspace, Salesforce, and Microsoft 365.

#### **3. Machine Reference Model of Virtualizing an Execution Environment:**

The machine reference model defines three levels of virtualizing an execution environment:

\* **Level 0:** Virtualizing the entire computer system, including hardware and operating system.

\* **Level 1:** Virtualizing the operating system, allowing multiple operating systems to run on the same hardware.

\* **Level 2:** Virtualizing the application environment, allowing different applications to run on the same operating system.

#### **4. Different Types of Cloud Deployment Models:**

\* **Public Cloud:** Cloud services offered by a third-party provider and accessible to the general public over the internet. Examples include AWS, Azure, and Google Cloud.

\* **Private Cloud:** Cloud services deployed and managed within an



## **RNS INSTITUTE OF TECHNOLOGY**

**Autonomous Institution Affiliated to VTU**

### **Assignment 2: CLOUD COMPUTING**

organization's own data center, offering more control and security.

**Hybrid Cloud:**  
A combination of public and private cloud resources, allowing organizations to leverage the benefits of both.

**Community Cloud:** Shared cloud infrastructure specifically designed for a group of organizations with common interests, typically in a particular industry or region.

#### **5. Distributed System:**

A distributed system is a collection of independent computers (nodes) that communicate and cooperate to achieve a common goal. These systems are designed to handle complex tasks by distributing workload and data across multiple nodes, providing scalability, fault tolerance, and high availability.

#### **6. Cloud Computing for On-Demand and Dynamic Scaling:**

Cloud computing provides on-demand resources, allowing users to instantly provision and access computing resources like servers, storage, and software as needed. Dynamic scaling automatically adjusts resources based on real-time demand, ensuring optimal performance while minimizing costs. This is achieved through features like autoscaling in cloud platforms, enabling resources to be scaled up or down as required.

#### **7. Service-Oriented Computing:**



## **RNS INSTITUTE OF TECHNOLOGY**

**Autonomous Institution Affiliated to VTU**

### **Assignment 2: CLOUD COMPUTING**

Service-oriented computing is a software design paradigm that utilizes loosely coupled, self-contained services to build distributed applications. These services are independent units that communicate with each other through well-defined interfaces, enabling flexibility, reusability, and interoperability.

**\*\*8. Explain how cloud computing provides solution for On-Demand and Dynamic Scaling:\*\***

Cloud computing offers on-demand resources, allowing users to instantly provision and access computing resources as needed, without the need for upfront investments in physical infrastructure. This flexibility is crucial for accommodating fluctuating demands and adapting to changing business requirements.

Dynamic scaling is another key benefit provided by cloud computing. It enables automatic adjustment of resources based on real-time demand, ensuring optimal performance while minimizing costs. Cloud platforms often include autoscaling features, allowing for the automatic scaling up or down of resources as needed. This dynamic scaling capability significantly enhances resource utilization efficiency and cost-effectiveness.

Overall, cloud computing's ability to provide on-demand resources and dynamic scaling makes it an ideal solution for businesses with fluctuating workload demands or those looking to optimize resource utilization and cost efficiency.

### **Question 2:**



**Assignment 2: CLOUD COMPUTING**

**4 Explain different types of Cloud Deployment Models.?**

Answer: <h2>Answer</h2><ul></ul>

**Question 3:**

**5 Explain Distributed system?**

Answer: <h2>Different Types of Hardware Virtualization Techniques</h2><ul><li><strong>Full Virtualization:</strong> Creates a complete virtual machine, emulating all hardware components. This allows running any operating system on the virtual machine.</li><li><strong>Para-Virtualization:</strong> Requires modifying the operating system to run on the virtual machine. This provides better performance but limits the operating systems that can be used.</li><li><strong>Hardware-Assisted Virtualization:</strong> Uses specialized hardware features to improve virtualization performance. This requires support from the CPU and motherboard.</li></ul>

**Question 4:**

**1 Explain different Types of Hardware Virtualization Techniques.?**

Answer: <h2>Answer</h2><ul></ul>

**Question 5:**

**3 Explain Machine Reference Model of Virtualizing an Execution Environment?**

Answer: <h2>Cloud Computing Platforms and Technologies</h2><ul><li><strong>Infrastructure as a Service (IaaS):</strong> Provides basic computing resources like servers, storage, and networking. Examples include Amazon EC2,



## RNS INSTITUTE OF TECHNOLOGY

Autonomous Institution Affiliated to VTU

### Assignment 2: CLOUD COMPUTING

Microsoft Azure, and Google Compute Engine.

- Platform as a Service (PaaS):** Offers development and deployment tools for building and running applications. Examples include Heroku, AWS Elastic Beanstalk, and Google App Engine.
- Software as a Service (SaaS):** Delivers software applications over the internet. Examples include Salesforce, Google Workspace, and Microsoft Office 365.

#### Question 6:

**2 Briefly discuss about cloud computing Platforms and Technologies?**

Answer: 

## Answer

#### Question 7:

**7 Explain Service Oriented Computing 1?**

Answer: 

## Machine Reference Model of Virtualizing an Execution Environment

- Virtual Processor:** Replicates the functionality of a physical processor.
- Virtual Memory:** Manages memory resources for the virtual machine.
- Virtual I/O Devices:** Emulates physical devices like disk drives, network cards, and graphics cards.