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:

Explain different Types of Hardware Virtualization Techniques.?

Answer: <!DOCTYPE html>

<html> <head> <title>Hardware Virtualization Techniques</title> </head> <body> <h2>Hardware Virtualization Techniques</h2> Hardware virtualization techniques are used to create a virtual version of a physical hardware component, such as a CPU, memory, or storage device. This allows multiple virtual machines to share the same physical hardware resources, increasing resource utilization and improving hardware utilization. There are several types of hardware virtualization techniques: <ol> Processor Virtualization: This technique involves creating a virtual CPU that is independent of the physical CPU. Virtual machines can run different operating systems and can share the same physical CPU. Memory Virtualization: This technique involves creating a virtual memory space that is independent of the physical memory. Virtual machines can have their own virtual memory space and can share the same physical memory. Storage Virtualization: This technique involves creating a virtual storage device that is independent of the physical storage device. Virtual machines can access virtual

storage and can share the same physical storage device. Network Virtualization: This technique involves creating a virtual network that is independent of the physical network. Virtual machines can have their own virtual network interface and can share the same physical network. I/O Virtualization: This technique involves creating a virtual I/O interface that is independent of the physical I/O interface. Virtual machines can have their own virtual I/O interface and can share the same physical I/O interface. Hardware virtualization techniques have several benefits, including increased resource utilization, improved hardware utilization, and enhanced security. They are used in a variety of applications, including cloud computing, server virtualization, and embedded systems. </body> </html>

Question 2:

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

Answer: <!DOCTYPE html>

<html> <head> <title>Cloud Computing and Scaling</title> </head> <body> <h2>Cloud Computing and Scaling</h2> Cloud computing provides a solution for on-demand and dynamic scaling by allowing organizations to quickly and easily add or remove computing resources as needed. This is achieved through a combination of virtualization, automation, and metered pricing models. On-demand scaling allows organizations to rapidly scale up or down in response to changes in workload or demand. This is achieved through the use of virtual servers, which can be quickly provisioned and de-provisioned as needed. Dynamic scaling allows organizations to automatically adjust the number of servers or resources based on changes in workload or demand. This is achieved through the use of

monitoring and analytics tools, which track resource usage and automatically adjust the number of servers or resources as needed. The benefits of on-demand and dynamic scaling include: <ul> Increased flexibility and agility Improved resource utilization Enhanced scalability Reduced capital and operational expenses Examples of cloud providers that offer on-demand and dynamic scaling include: <ul> AWS (Amazon Web Services) Microsoft Azure Google Cloud Platform IBM Cloud </body> </html>

Question 3:

Briefly discuss about cloud computing Platforms and Technologies?

Answer: <!DOCTYPE html>

<html> <head> <title>Cloud Computing Platforms and Technologies</title> </head> <body> <h2>Cloud Computing Platforms and Technologies</h2> Cloud computing platforms and technologies are the underlying infrastructure and software that enable cloud computing. There are several platforms and technologies that are used in cloud computing, including: <ul> Infrastructure as a Service (IaaS) Platforms: IaaS platforms provide virtualized computing resources, such as servers and storage, over the internet. Examples of IaaS platforms include AWS, Azure, and Google Cloud Platform. Platform as a Service (PaaS) Platforms: PaaS platforms provide a complete development and deployment environment for applications, including tools, libraries, and infrastructure. Examples of PaaS platforms include Heroku and Google App Engine. Software as a Service (SaaS) Platforms: SaaS platforms provide software applications over the internet, eliminating the need for local installation and maintenance.

Examples of SaaS platforms include Microsoft Office 365 and Salesforce. Cloud Management Platforms: Cloud management platforms provide tools and services for managing and monitoring cloud resources, including provisioning, security, and governance. Examples of cloud management platforms include VMware vCloud and Microsoft System Center. The benefits of cloud computing platforms and technologies include: <ul> Increased scalability and flexibility Improved resource utilization Enhanced security and compliance Reduced capital and operational expenses </body> </html>

Question 4:

Explain Service Oriented Computing 1?

Answer: <!DOCTYPE html>

<html> <head> <title>Service Oriented Computing</title> </head> <body> <h2>Service Oriented Computing</h2> Service Oriented Computing (SOC) is a software architecture style that focuses on providing services to users, rather than providing a specific application or system. In an SOC environment, applications and services are designed to be loosely coupled, modular, and reusable. The key characteristics of SOC include: <ul> Services: Services are the core of SOC, and are designed to be reusable and modular. Services can be combined to create new services. Loose Coupling: Services are designed to be loosely coupled, meaning that they are independent and can be changed without affecting other services. Standardized Interfaces: Services use standardized interfaces to communicate with each other. Autonomy: Services are autonomous

and can be managed independently. The benefits of SOC include: <ul> Improved scalability and flexibility Enhanced reusability and modularity Improved maintainability and deployability Reduced costs and improved productivity Examples of companies that use SOC include: <ul> CXO.com IBM Microsoft </body> </html>

Question 5:

Explain Distributed system?

Answer: <!DOCTYPE html>

<html> <head> <title>Distributed Systems</title> </head> <body> <h2>Distributed Systems</h2> A distributed system is a system that consists of multiple computers or nodes that work together as a single system. The computers or nodes are geographically dispersed and can be connected through a network. The key characteristics of a distributed system include: <ul> Decentralization: The system is decentralized, meaning that there is no single point of failure or central control. Autonomy: Each node or computer has its own autonomy and can be managed independently. Distributed Data: The data is distributed among the nodes or computers. Network: The nodes or computers are connected through a network. The benefits of distributed systems include: <ul> Improved scalability and flexibility Enhanced availability and reliability Improved performance and speed Reduced costs and improved productivity Examples of distributed systems include: <ul> Cloud computing Grid computing Peer-to-peer networks </body>

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Question 6:

Explain different types of Cloud Deployment Models.?

Answer: <!DOCTYPE html>

<html> <head> <title>Cloud Deployment Models</title> </head> <body> <h2>Cloud Deployment Models</h2> Cloud deployment models determine how a cloud is deployed and managed. There are several types of cloud deployment models, including: <ol> Public Cloud: A public cloud is a cloud that is owned and managed by a third-party provider. The cloud resources are shared with other customers, but are isolated from each other. Private Cloud: A private cloud is a cloud that is owned and managed by a single organization. The cloud resources are not shared with other customers. Hybrid Cloud: A hybrid cloud is a cloud that combines public and private cloud resources. The cloud resources can be integrated and managed as a single system. Community Cloud: A community cloud is a cloud that is shared among multiple organizations that have similar interests or goals. The cloud resources are managed and maintained by the organizations. Edge Cloud: An edge cloud is a cloud that is deployed at the edge of the network, close to the user. Edge clouds are used for applications that require low latency and high performance. The benefits of cloud deployment models include: <ul> Improved scalability and flexibility Enhanced security and compliance Improved availability and reliability Reduced costs and improved productivity </body> </html>

Question 7:

Explain Machine Reference Model of Virtualizing an Execution Environment?

Answer: <!DOCTYPE html>

<html> <head> <title>Machine Reference Model</title> </head> <body> <h2>Machine Reference Model</h2> The Machine Reference Model (MRM) is a model that defines the architecture of a virtual machine (VM). The MRM is used to virtualize an execution environment, which allows multiple VMs to share the same physical hardware resources. The MRM is based on the following layers: <ol> Layer 1: Physical Layer: This layer represents the physical hardware resources, such as CPU, memory, and storage. Layer 2: Virtualization Layer: This layer provides the virtualization software, which creates a virtual machine and manages the virtual resources. Layer 3: Execution Environment Layer: This layer represents the operating system and applications that run on the VM. Layer 4: Logical Layer: This layer represents the logical resources, such as virtual CPU, memory, and storage. The benefits of the Machine Reference Model include: <ul> Improved scalability and flexibility Enhanced security and compliance Improved availability and reliability Reduced costs and improved productivity </body> </html>