



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: VIRTUALIZATION TECHNIQUES (23CS1203) **Course & Branch:** B.Tech CCC

Year & Sem: III-B.Tech & I-Sem **Regulation:** R23

**UNIT –I
INTRODUCTION TO VIRTUALIZATION**

1	a)	Define virtualization.	[L1][CO1]	[2M]
	b)	State any two advantages of virtualization.	[L1][CO1]	[2M]
	c)	What is threaded interpretation?	[L1][CO1]	[2M]
	d)	Define taxonomy of virtual machines.	[L1][CO1]	[2M]
	e)	Give an example of a process virtual machine.	[L2][CO1]	[2M]
2		With a neat diagram, explain the architecture of a system virtual machine	[L2][CO1]	[10M]
3		With a neat diagram, explain the architecture of a Process virtual machine	[L2][CO1]	[10M]
4		Demonstrate the fundamentals of Virtual Machine Basics.	[L3][CO1]	[10M]
5	a)	Identify the advantages and limitations of process virtual machines compared to other virtualization techniques.	[L2][CO1]	[5M]
	b)	Distinguish emulation and explain how Basic Interpretation serves	[L4][CO1]	[5M]
6		Classify the components and working of a virtual machine monitor (VMM) in a system architecture	[L4][CO1]	[10M]
7		Explain the Taxonomy of Virtual Machines in detail.	[L2][CO1]	[10M]
8		Compare and Contrast virtualization and Emulation.	[L4][CO1]	[10M]
9		Explain the different types of interpretation techniques in emulation — i) Threaded Interpretation ii) Direct Interpretation	[L2][CO1]	[10M]
10	a)	Compare system virtualization and process virtualization in terms of architecture, performance, and use cases	[L4][CO1]	[5M]
	b)	With a suitable diagram, explain how virtualization is implemented at the system architecture level.	[L2][CO1]	[5M]
11		Illustrate the key components of system architectures relevant to virtualization	[L4][CO1]	[10M]

UNIT –II
VIRTUALIZATION INFRASTRUCTURE

1	a)	Mention two advantages of desktop virtualization	[L2][CO2]	[2M]
	b)	Categorize hypervisors with examples	[L4][CO2]	[2M]
	c)	Define memory virtualization	[L1][CO2]	[2M]
	d)	List any two types of virtualizations.	[L1][CO2]	[2M]
	e)	What is the function of a hypervisor?	[L1][CO2]	[2M]
2	a)	Describe Server Virtualization with architecture and benefits.	[L2][CO2]	[5M]
	b)	Express the key components of virtualization infrastructure.	[L1][CO2]	[5M]
3		What steps are involved in provisioning virtual machines, and what factors influence VM performance?	[L2][CO2]	[10M]
4		Demonstrate i) desktop virtualization ii) storage virtualization iii) server virtualization iv) Application virtualization	[L3][CO2]	[10M]
5	a)	Compare and contrast desktop virtualization and application virtualization	[L4][CO2]	[5M]
	b)	Explain virtualization structure using a layered architecture diagram.	[L2][CO2]	[5M]
6	a)	Compare and Contrast server virtualization and storage virtualization	[L4][CO2]	[5M]
	b)	Describe the virtualization of CPU and Memory.	[L2][CO2]	[5M]
7		Explain the concept of memory virtualization and its role in optimizing resource utilization.	[L2][CO2]	[10M]
8		Describe Hardware Virtualization and its methods	[L2][CO2]	[10M]
9		Explain the various implementation levels of virtualization with examples	[L2][CO2]	[10M]
10		Illustrate the concept of hypervisor and its role in managing virtualized resources.	[L3][CO2]	[10M]
11		Explain the concept of a resource pool in virtualization and its advantages in resource allocation.	[L2][CO2]	[10M]

UNIT –III NETWORK VIRTUALIZATION

1	a)	Mention two benefits of VLANs	[L2][CO3]	[2M]
	b)	Write two benefits of network virtualization in enterprises	[L2][CO3]	[2M]
	c)	Define network virtualization	[L1][CO3]	[2M]
	d)	What is the use of Layer 2 virtualization?	[L1][CO3]	[2M]
	e)	What is the function of WAN virtualization in scalability?	[L1][CO3]	[2M]
2	a)	Explain WAN Networking Technologies: i) Packet Switching ii) Routing	[L2][CO3]	[7M]
	b)	List out Network Virtualization advantages.	[L1][CO3]	[3M]
3		Describe the architecture and benefits of WAN virtualization.	[L2][CO3]	[10M]
4		Explain the Transport Virtualization Architecture	[L2][CO3]	[10M]
5		Compare and contrast Layer 2 and Layer 3 virtualization approaches.	[L4][CO3]	[10M]
6		Apply network virtualization techniques (e.g., VLANs) to improve manageability of a Layer 2 network with multiple departments sharing the same physical switch.	[L3][CO3]	[10M]
7	a)	Define VLAN? Explain Virtual Routing and Forwarding	[L3][CO3]	[5M]
	b)	How is virtual enterprise achieved through network virtualization?	[L1][CO3]	[5M]
8		Illustrate the role of Layer 3 VRF instances in network security.	[L3][CO3]	[10M]
9		How are virtualization technologies integrated into traditional network architectures?	[L1][CO3]	[10M]
10		Discuss the challenges and benefits of implementing network virtualization in real-world scenarios.	[L4][CO3]	[10M]
11		Design a scalable enterprise network using network virtualization techniques for a company with multiple branch offices.	[L3][CO3]	[10M]

UNIT –IV
NETWORK FIREWALLS AND ROUTING

1	a)	Define Generic Routing Encapsulation (GRE)	[L1][CO4]	[2M]
	b)	Mention any two uses of IPSec	[L2][CO4]	[2M]
	c)	What is datapath virtualization?	[L1][CO4]	[2M]
	d)	Configure VLAN tagging using the 802.1Q standard for a network with three departments on a single switch.	[L3][CO4]	[2M]
	e)	Define virtualized routing protocols.	[L1][CO4]	[2M]
2	a)	Explain the significance of Layer 2 technologies like 802.1q and trunking.	[L2][CO4]	[5M]
	b)	Describe the purpose of Generic Routing Encapsulation (GRE).	[L2][CO4]	[5M]
3		Discuss the concept of Label Switched Paths (LSPs) in network routing.	[L2][CO4]	[10M]
4		Outline the role of routing protocols in network communication?	[L3][CO4]	[10M]
5		Interpret multi-topology routing and its advantages.	[L3][CO4]	[10M]
6	a)	State the virtual firewall contexts enhance network security?	[L2][CO4]	[5M]
	b)	Explain the primary function of datapath virtualization.	[L2][CO4]	[5M]
7		Discuss the implementation and benefits of 802.1q VLAN tagging.	[L2][CO4]	[10M]
8	a)	Identify the purpose of GRE in network communication.	[L2][CO4]	[5M]
	b)	What are the security features provided by IPSec and L2TPv3?	[L1][CO4]	[5M]
9		Classify the operation of Label Switched Paths in routing.	[L4][CO4]	[10M]
10		Discuss the role of routing protocols in determining optimal network paths.	[L2][CO4]	[10M]
11	a)	How do VFIs contribute to network firewall contexts?	[L1][CO4]	[5M]
	b)	Predict datapath virtualization in network devices?	[L4][CO4]	[5M]

UNIT –V
APPLYING VIRTUALIZATION

1	a)	Define guest OS in virtualization	[L1][CO5]	[2M]
	b)	Expand ESXi	[L2][CO5]	[2M]
	c)	What is emulation in virtualization?	[L1][CO5]	[2M]
	d)	List two advantages of Oracle VirtualBox	[L1][CO5]	[2M]
	e)	State one difference between full virtualization and emulation	[L1][CO5]	[2M]
2	a)	Illustrate the use of Shared Kernel virtualization in deploying multiple applications with isolated environments.	[L3][CO5]	[5M]
	b)	Analyze the impact of server virtualization solutions on the efficiency and management of IT infrastructure.	[L4][CO5]	[5M]
3		Identify the key features of ESXi hypervisor in server virtualization?	[L2][CO5]	[10M]
4	a)	Explain the role of Citrix Xen Server in enterprise virtualization deployments.	[L2][CO5]	[5M]
	b)	How does Microsoft Virtual PC differ from other enterprise virtualization solutions?	[L1][CO5]	[5M]
5		Describe the functionalities offered by VirtualBox in enterprise virtualization setups.	[L2][CO5]	[10M]
6	a)	Compare the performance and scalability of VMware Server and ESXi.	[L4][CO5]	[5M]
	b)	How does Citrix Xen Server enhance Virtualization management and deployment?	[L2][CO5]	[5M]
7		Demonstrate how the security features of Microsoft Hyper-V can be applied to secure virtual machines in a virtualized environment.	[L3][CO5]	[10M]
8		Explain the flexibility and customization options available in VirtualBox for virtual machine configurations.	[L2][CO5]	[10M]
9		Discuss the role of hypervisors in managing virtualized server resources	[L2][CO5]	[10M]
10		Classify the potential challenges of implementing server virtualization in enterprise IT infrastructures?	[L4][CO5]	[10M]
11		State the main differences between Guest OS, Host OS, Hypervisor, Emulation, and Kernel Level virtualization?	[L4][CO5]	[10M]

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