

Enrollment No.....



Faculty of Engineering
End Sem Examination May-2023
CS3EY04 Principles of Virtualization

Programme: B.Tech.

Branch/Specialisation: CSE All

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which of the following type of virtualization is also characteristics of cloud computing? 1
(a) Storage (b) Application (c) CPU (d) All of these
- ii. The Infrastructure as a service (IaaS) provides a type of isolated environment to each customer individually by using _____. 1
(a) Renting (b) Virtual machine sprawl
(c) Security vulnerabilities (d) Hypervisor
- iii. Which one of the following is the type of a service that manages and creates virtual network interfaces? 1
(a) VMware vStorage (b) Application services
(c) VMware vCompute (d) VMware vNetwork
- iv. VSAN stands for- 1
(a) Virtual system area network
(b) Virtual storage area network
(c) Virtual switch area network
(d) Virtual storage address network
- v. You plan to deploy vSphere 6.0 and want to minimize virtual machine downtime by proactively detecting hardware failures and placing the host in Quarantine Mode or Maintenance Mode. Which feature do you need? 1
(a) vSphere High Availability (b) Proactive HA
(c) Predictive DRS (d) vCenter HA

- vi. VMware distributed resource scheduler? **1**
 (a) Balances virtualized computing workloads with available resources
 (b) Partitions a physical server into multiple VMs
 (c) Pools network and storage resources for test and development
 (d) Centralizes and optimizes data center resources and desktop management
- vii. Which one of the following statements is not true? **1**
 (a) Google's cloud involves approx ten data-centers in all over the world.
 (b) Data centers are sited in such a way that the overall system latency can be optimized.
 (c) The online shopping website, such as Flipkart.com, has the infrastructure built so that it can support the elastic demand so the system will be capable of accommodating peak traffic.
 (d) All of these
- viii. _____ is not a data center challenge? **1**
 (a) Data center design (b) Power supply failure
 (c) Cost (d) Networking and cabling
- ix. Non-Uniform Memory Access (NUMA) is- **1**
 (a) Here all processors have equal access and access times to memory
 (b) Here if one processor updates a location in shared memory, all the other processors know about the update
 (c) Here one SMP can directly access memory of another SMP and not all processors have equal access time to all memories
 (d) None of these
- x. Method of copying and sending network packets transmitted as input from a port to another port of a monitoring computer/switch/device- **1**
 (a) Port mirroring (b) Port duplicate
 (c) Port copy (d) Port passing
- Q.2 i. What is virtualization? **2**
 ii. Write difference between virtualization and cloud. **3**
 iii. List out and explain types of virtualization. **5**
 OR iv. Can you explain what a hypervisor does? What are the benefits of using a hypervisor for an organization? **5**

- Q.3 i. Explain virtual networking. **2**
 ii. Define the use of alarms and alert for vCenter server. **3**
 iii. Explain the topology of vSphere 6.0 data center. **5**
 OR iv. What is virtual switch? Explain its types. **5**
- Q.4 i. Will fault tolerance work if the vCenter server goes down? **2**
 ii. What do you mean by distributed resource scheduler? **3**
 iii. Explain storage I/O control and network I/O control. **5**
 OR iv. What is vSphere replication? How does it help in disaster recovery in virtual machines? **5**
- Q.5 i. What is vCenter server instances? **2**
 ii. Describe the features and benefits of VMware platform services controller. **3**
 iii. What do you mean by ESXi? Write three port-groups that are configured in ESXi networking. **5**
 OR iv. Write short notes on following: **5**
 (a) Scalability Challenges
 (b) Cloud Challenges
- Q.6 i. How to disable memory overcommit in VMware? **2**
 ii. Write difference between uniform memory access (UMA) and non-uniform memory access (NUMA). **3**
 iii. How to migrate virtual machines from standard switches to distributed switches? **5**
 OR iv. What is LACP? How LACP is enabled on a VMware distributed switch? **5**

Marking Scheme

Principle of Virtualisation CS3EY04[T]

Q.1	i)	Which of the following type of virtualization is also characteristics of cloud computing?	1
		Answer d: All of the mentioned	
	ii)	The Infrastructure as a service (IaaS) provides a type of isolated environment to each customer individually by using_____.	1
		Answer d: Hypervisor	
	iii)	Which one of the following is the type of a service that manages and creates virtual network interfaces?	1
		Answer d: VMware vNetwork	
	iv)	VSAN stands for:	1
		Answer b: Virtual storage area network	
	v)	You plan to deploy vSphere 6.0 and want to minimize virtual machine downtime by proactively detecting hardware failures and placing the host in Quarantine Mode or Maintenance Mode. Which feature do you need?	1
		Answer b: Proactive HA	
	vi)	VMware distributed resource scheduler?	1
		Answer a: Balances virtualized computing workloads with available resources	
	vii)	Which one of the following statements is not true?	1
		Answer b: Data centers are sited in such a way that the overall system latency can be optimized	
	viii)	_____ is not a data center challenge?	1
		Answer c: Cost	
	ix)	Non-Uniform Memory Access (NUMA) is:	1
		Answer c: Here one SMP can directly access memory of another SMP and not all processors have equal access time to all memories	
	x)	Method of copying and sending network packets transmitted as input from a port to another port of a monitoring computer/switch/device.	1
		Answer a: Port mirroring	

Q.2	i.	What is virtualization?	2 marks	2
	ii.	Write difference between virtualization and cloud?		3
		Minimum three difference 1 marks for each		
	iii.	List out and explain types of virtualization?		5
		Minimum five 1 marks for each		
OR	iv.	Can you explain what a hypervisor does?	2 marks	5
		What are the benefits of using a hypervisor for an organization?		
		3 marks		
Q.3	i.	Explain virtual networking?	2 marks	2
	ii.	Define the use of alarms and alert for vCenter server?		3
		Use of alarms	1.5 marks	
		Use of alert	1.5 marks	
	iii.	Explain the topology of vSphere 6.0 data center?		5
		Compute Servers, Storage networks and arrays, IP networks, vCenter Server, Management clients	4 marks	
		Diagram	1 marks	
OR	iv.	What is virtual switch?	2 marks	5
		Explain its types?	Minimum three 1 marks for each	
Q.4	i.	Will fault tolerance work if the vCenter server goes down?		2
		2 marks		
	ii.	What do you mean by distributed resource scheduler?	3 marks	3
	iii.	Explain storage I/O control	2.5 marks	5
		network I/O control?	2.5 marks	
OR	iv.	What is vSphere replication?	2 marks	5
		How does it help in disaster recovery in virtual machines?		
		3 marks		
Q.5	i.	What is vCenter server instances?	2 marks	2
	ii.	Describe the features	1.5 marks	3
		benefits of VMware platform services controller?	1.5 marks	
	iii.	What do you mean by ESXi?	2 marks	5
		Write three port-groups that are configured in ESXi networking.		
		3 marks		
OR	iv.	Write short notes on following:		5

[2]

[3]

1. Scalability Challenges **2.5 marks**
2. Cloud Challenges **2.5 marks**

- Q.6
- i. How to disable memory overcommit in VMware? **2 marks** **2**
 - ii. Write difference between uniform memory access (UMA) and non-uniform memory access (NUMA)? **3**
Minimum three difference 1 marks for each
 - iii. How to migrate virtual machines from standard switches to distributed switches? **5**
 - Create a Distributed Switch **1 mark**
 - Create Port Groups **1 mark**
 - Migrate Management Network **1 mark**
 - Migrate vMotion **1 mark**
 - Migrate vSAN Network & Migrate VM Network **1 mark**
- OR
- iv. What is LACP? **2 marks** **5**
 - How do i enable LACP on a VMware distributed switch? **3 marks**
