**DV162\_58\_PAS\_Client-side Virtualization**

**Possible Answers Sheet**

Q1. What does virtualization technology allow us to do?

Ans: Virtualization technology allows us to run multiple operating systems on one single desktop at the same time.

Q2. What are examples of Virtualization Technology?

Ans. Server Virtualization, Desktop Virtualization, Storage Virtualization, Network Virtualization and Applications Virtualization.

Q3. How does each individual operating system view their resources?

Ans: To each individual operating system, it looks like the OS has its own CPU, its own memory, and its own storage.

Q4. What type of virtualization is commonly found in a data center or enterprise environment?

Ans: A standalone server that hosts multiple virtual machines on that hardware type, virtualization, and commonly found in a data center or enterprise environment.

Q5. How long has virtualization been around?

Ans: We have been using virtualization since the 60's with IBM mainframes.

Q6. What are some of the uses of virtualization?

Ans: -Running legacy software on an older operating system while using the latest on our desktop.  
- Running different operating systems at the same time.  
- Creating isolated testing environments for application development.

Q7. What can you do with virtual machines?

Ans: -Run multiple operating systems on a single desktop.  
 - Isolate software for testing purposes.  
 - Create snapshots to revert to a previous state.

Q8. What is one example of how virtual machines can be helpful?

Ans: We can run an old program that only works on Windows XP on your modern computer by creating a virtual machine with Windows XP.

Q9. What operating systems can be run on one single desktop?

Ans: macOS, Windows, and Linux (all at the same time).

Q10. What does Virtualization as a technology allow us?

Ans. - To run multiple operating systems on a single desktop at the same time.  
 - To consolidate multiple physical servers onto fewer machines

Q11. What are the advantages of virtualization?

Ans: - Saves resources by consolidating workloads.  
 - Allows running legacy software alongside modern systems.  
 - Enables running different operating systems simultaneously.  
 -Creates isolated testing environments

Q12. : What is the purpose of virtualization?

Ans: - To allow running multiple operating systems on a single machine.  
 - To improve resource utilization

Q13. The software that’s able to keep track of our storage, our memory, our CPU, and everything else between all of these different virtual machines is called the \_\_\_\_\_\_\_\_\_\_.

Ans. Hypervisor.

Q14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ really does describe exactly what the software is doing.

Ans. Virtual machine manager.

Q15. We’re able to run multiple operating systems, but the memory, the storage, the networking, and everything else is managed as if it is its own \_\_\_\_\_\_\_\_\_\_\_\_\_.

Ans. Single OS.

Q16. How do you ensure that your CPU is ready to be used with virtualization software?

Ans. Check your system documentation to see if your CPU has hardware-based virtualization built-in, like Intel VT or AMD-V.

Q17. What hardware is built into CPUs running on an Intel platform?

Ans. Virtualization Technology (VT).

Q18. What hardware is built into AMD CPUs for virtualization?

Ans. AMD-V.

Q19.What should be taken into consideration when planning to do virtualization on a desktop?

Ans: - CPU compatibility with virtualization  
 - Amount of RAM  
 - Storage space

Q20. How much memory do I need to run multiple VMs?

Ans: To run multiple virtual machines, we need to ensure that we have sufficient RAM to allocate to each VM, as each operating system running within a VM consumes memory.

Q21. What do you need to consider when creating a virtual machine?

Ans: When creating a virtual machine, you need to consider factors such as the choice of operating system, allocated CPU and memory resources, storage configuration, and network settings.

Q22. Why should you consider the amount of storage space when creating a virtual machine?

Ans: It is important to consider the amount of storage space when creating a virtual machine because each operating system and its associated files can require multiple gigabytes of storage space.

Q23. What should you configure when creating a virtual machine?

Ans: When creating a virtual machine, you should configure its network settings to ensure proper communication with other devices on the network or the internet, based on your requirements.

Q24. What is an example of how a developer might take advantage of a VM?

Ans: An example of how a developer might take advantage of a VM is through the use of an isolated testing environment, where they can run and test software without affecting production systems.

Q25. What benefits does a Virtual Machine provide?

Ans: Virtual machines provide benefits such as improved resource utilization, flexibility, scalability, isolation, and ease of management.

Q26. What is the ability of virtual machines?

Ans: The ability of virtual machines is to run multiple operating systems simultaneously on a single physical machine, sharing the underlying hardware resources and to create snapshots and revert to a previous setup.  
  
Q27. Working in a VM, especially a virtual machine that is exactly the same as a production network, is perfect for a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Ans. Developer.

Q28. What does the testing in a virtualized environment allow the developers?

Ans. Testing in a virtualized environment allows developers to test software changes and updates in isolated environments without impacting production systems.

Q29. What is a major concern with running virtual environments?

Ans: A major concern with running virtual environments is VM escaping, where malware running on one VM gains access to the hypervisor and other virtual machines.

Q30. What can happen once malware gains access to a hypervisor?

Ans: Once malware gains access to a hypervisor, it can potentially hop to any other virtualized systems managed by that hypervisor, compromising the security of the entire environment.

Q31. Have any vulnerabilities been identified in the past that allowed for VM escapes? Ans: Vulnerabilities identified in the past that allowed for VM escapes have been addressed by vendors through patches and updates before they could be exploited by hackers.

.

Q32. What security measures can be used to protect virtual machines?

Ans: Security measures to protect virtual machines include installing host-based firewalls, using antivirus software, implementing access controls, and regularly applying security patches.

Q33. What is the potential danger of using hosted services for virtual machines?

Ans: The potential danger of using hosted services for virtual machines is the risk of VM escapes, where attackers could gain access to data from multiple customers if they exploit vulnerabilities in the hypervisor.

Q34. What should you be aware of when using someone else's virtual machine?

Ans: When using someone else's virtual machine, you should be aware that it may contain malware or malicious software, so it's best to build your own virtual machines to ensure security.

Q35. What are some different ways to configure the networking between VMs?

Ans: Different ways to configure networking between VMs include shared network addresses, bridged network addresses, and private addresses, each offering different levels of communication and isolation.

Q36. What type of IP address does a virtual machine use?

Ans: A virtual machine typically uses its own IP address, which can be dynamically assigned or statically configured.

Q37. How does a virtual machine obtain an IP address?

Ans: Virtual machine obtain an IP address by following ways  
 - The VM uses the same IP address as the physical host computer.  
 - The VM gets its own unique IP address through a process similar to any  
 physical device on the network.  
 - The VM receives no IP address and cannot communicate outside of the virtual  
 network shared among other VMs

Q38. How can you lock down a VM so there is no communication outside of the local virtualized environment?

Ans: By using a private address configuration for the virtual machine's network settings. With this configuration, the VM doesn't get an IP address on the main network and cannot perform NAT. This isolates the VM from any communication outside of the virtual network shared with other VMs.