Interview Questions: Storage Spaces Overview

Easy Questions (Direct Recall)

#	Question	Marking Criteria (Scale of 1-10)
E1	According to the article, what is a "storage pool" in the context of Storage Spaces?	• 1-4: Incorrect definition or confuses pool with space. • 5-7: Provides a partially correct definition, mentioning grouping disks but missing key aspects like aggregation or expansion. • 8-10: Accurately defines it as a collection of physical disks used to aggregate disks, expand capacity flexibly, and delegate administration, as stated in the article.
E2	The article lists three storage layouts (resiliency types) provided by Storage Spaces. What are they?	• 1-4: Names fewer than two correct types or names incorrect types. • 5-7: Names two of the three correct types (Mirror, Parity, Simple). • 8-10: Correctly names all three types: Mirror, Parity, and Simple (no resiliency).
E3	What are the two types of drives the article mentions can be combined in a single storage pool when using storage tiers?	• 1-4: Names incorrect drive types or only one type. • 5-7: Names SSDs and mentions "other disks" or "spinning disks". • 8-10: Correctly identifies Hard Disk Drives (HDDs) and Solid-State Drives (SSDs) as the types mentioned.
E4	List three of the management tools mentioned in the article through which Storage Spaces can be managed.	• 1-4: Names fewer than two correct tools or names incorrect tools. • 5-7: Names two of the correct tools mentioned (System Center VMM, Failover Cluster Manager, Server Manager, Windows PowerShell, WMI). • 8-10: Correctly names three of the tools listed in the article (e.g., Server Manager, PowerShell, Failover Cluster Manager).

#	Question	Marking Criteria (Scale of 1-10)
E5	What type of connected disks are listed as a requirement for Storage Spaces in the article?	• 1-4: Names incorrect connection types (e.g., IDE, Fibre Channel) or mentions USB without qualification. • 5-7: Names only one correct type (SATA or SAS) or mentions USB drives as a primary requirement. • 8-10: Correctly identifies Serial ATA (SATA) or Serial Attached SCSI (SAS) connected disks. (May optionally mention USB 3 is recommended for consumers but SATA/SAS is the core requirement).

Medium Questions (Interpretation & Connection)

#	Question	Marking Criteria (Scale of 1-10)
M1	Based on the article's descriptions, what is the fundamental difference between a "storage pool" and a "storage space"?	• 1-4: Cannot differentiate, reverses the definitions, or provides incorrect descriptions. • 5-7: Explains that pools are made of physical disks and spaces are created from pools, but struggles to articulate that spaces are virtual disks with specific attributes. • 8-10: Accurately explains that storage pools are collections of physical disks, while storage spaces are virtual disks created from the free space in a pool, having attributes like resiliency level and storage tiers.
M2	The article describes "Storage tiers". According to the text, what is the primary purpose of this feature and how does it achieve it?	• 1-4: Incorrect purpose (e.g., only for resiliency) or cannot explain the mechanism. • 5-7: Correctly identifies the purpose is performance improvement but provides a vague explanation of how, perhaps mentioning SSDs but not the data movement. • 8-10: Accurately states the purpose is to combine the best attributes of SSDs (performance) and HDDs (capacity) by automatically moving frequently accessed ("hot") data to the SSD tier and less frequent data to the HDD tier.
M3	According to the article, how does the "Mirror" resiliency type protect data compared to the "Parity" type? What kind of workloads does the article suggest for each?	• 1-4: Incorrect comparison or workload suggestions. Confuses the mechanisms. • 5-7: Correctly states Mirror writes extra copies and Parity writes parity info, but is unclear on the recommended workloads or performance implications mentioned. • 8-10: Accurately explains Mirror writes 1 or 2 extra copies of data, recommended for most workloads for protection and performance (esp. with tiers). Parity writes 1 or 2 copies of parity info, suggested for archival/streaming or where capacity is maximized and lower write performance is acceptable.

#	Question	Marking Criteria (Scale of 1-10)
M4	The article mentions Storage Spaces integration with Failover Clustering. What capability does this integration provide, according to the text?	• 1-4: Incorrect capability (e.g., faster performance, better capacity) or general statement about clustering. • 5-7: Mentions high availability or failover but struggles to connect it specifically to Storage Spaces deployment as described. • 8-10: Accurately explains that integration with Failover Clustering allows Storage Spaces to deliver continuously available service deployments, where clustered pools allow spaces to seamlessly fail over between nodes.
M5	What is the purpose of the "Write-back cache" feature described in the article, and what type of drive is used for it?	• 1-4: Incorrect purpose or drive type. Confuses with storage tiers. • 5-7: Correctly identifies the purpose is to buffer writes but is unclear on the type of writes (random) or the drive type used. • 8-10: Accurately states its purpose is to buffer small random writes to reduce latency, and that it uses a small amount of space on SSDs in the pool.

Hard Questions (Synthesis & Application within Article Context)

#	Question	Marking Criteria (Scale of 1-10)
H1	The article describes automatic repair capabilities for mirror and parity spaces. Based on the text, describe the two methods mentioned for replacing data from a failed disk. Which method is described as potentially faster?	• 1-4: Incorrect methods, describes only one, or cannot identify the faster method based on the text. • 5-7: Correctly identifies using dedicated hot spares and using spare capacity in the pool, but incorrectly identifies which is faster or doesn't recall the text stating one is faster. • 8-10: Accurately describes the two methods: using dedicated hot spares reserved for replacement, OR using spare capacity on other disks in the pool. Correctly identifies that using spare capacity across the pool is described as the more rapid method.
H2	According to the article, what are the key requirements and restrictions mentioned specifically for using Storage Spaces in a *shared-storage deployment on failover clusters*?	• 1-4: Lists general Storage Spaces requirements or requirements for standalone use. Misses cluster-specific points. • 5-7: Mentions some cluster requirements like multiple servers and clustering itself, but misses specifics about JBODs, HBAs, or CSVs mentioned in the text. • 8-10: Accurately lists the cluster-specific requirements stated: 2+ servers (Win Srv 2012/R2), failover clustering/CSV requirements met, SAS connected JBODs (certified), identical certified SAS HBAs (no built-in RAID) connected to all JBODs.

#	Question	Marking Criteria (Scale of 1-10)
H3	When using Storage Spaces inside an Azure virtual machine by pooling multiple VHDs, the article gives specific guidelines. Explain the recommended resiliency type and the reason provided for this recommendation. Also, mention the guidance regarding disk formatting.	• 1-4: Incorrect resiliency type, reason, or formatting guidance. Applies general Storage Spaces recommendations instead of Azure VM specifics from the text. • 5-7: Correctly identifies Simple resiliency but is unclear on the reason (Azure providing VHD resiliency) or misses the specific formatting parameters (`Format-Volume`, 64KB AUS, LargeFRS). • 8-10: Accurately states the recommended type is Simple, because Azure already provides resiliency for the underlying .vhd files. Also correctly mentions using `Format-Volume` with `-AllocationUnitSize 64KB -UseLargeFRS` parameters.
H4	The article lists "Dual parity" as a new feature. Based on its description, how does it enhance data protection compared to the standard parity described earlier, and what benefit does it offer simultaneously?	• 1-4: Incorrect description of enhancement or benefit. Confuses with mirror or standard parity. • 5-7: Correctly states it protects against two disk failures but is unclear on the second benefit mentioned (optimizing storage efficiency). • 8-10: Accurately explains that dual parity enhances protection by storing two copies of parity information, allowing recovery from two simultaneous disk failures (implicitly more than standard parity), while also optimizing for storage efficiency.
H5	Considering the descriptions of Storage Tiers and Write-back Cache, explain how these two features, according to the article, work together using SSDs and HDDs in a pool to improve performance for different types of I/O.	• 1-4: Cannot explain how they complement each other or confuses their functions. Describes only one feature. • 5-7: Explains both features individually but struggles to synthesize how they address different I/O patterns (hot data reads vs. random writes) using the combined SSD/HDD pool. • 8-10: Accurately synthesizes: Storage Tiers improve read performance for frequently accessed ("hot") data by moving it to the SSD tier. Write-back Cache improves performance for small random writes (often dominant in enterprise workloads) by buffering them on SSDs before they are later written to HDDs. Together, they leverage SSDs for both hot data reads and random write latency reduction within the same pool.