

## **QUESTION BANK**

### **UNIT-1**

- 1) Explain the Server – Centric IT architecture, with a neat diagram. Explain its limitations.  
**(Dec/Jan 2014) (10 Marks)**
- 2) Explain the storage – Centric IT architecture, with a neat diagram. Explain its advantages.  
**(Dec/Jan 2014) (10 Marks)**
- 3) Define server centric IT architecture and storage centric IT architecture with advantages and limitations. **(June/July 2011)(10 Marks)**
- 3) Explain the benefits of storage networks on business applications.  
**(June/July 2011) (10 Marks)**
- 5) Explain the basic requirement of storage systems **(May/Jun 2010) (10 Marks)**
- 6) Differentiate storage centric IT architecture from server centric IT architecture **(May/June 2010) (10 Marks)**
- 7) Why storage networking makes sense? Explain? **(Dec/Jan 2012)(10 Marks)**
- 8) Describe the attributes that characterizes enterprise business applications?  
**(Dec/Jan 2012) (10 Marks)**
- 9) Differentiate between maintenance and support applications? **(Dec/Jan 2010) (10 Marks)**
- 10) With a neat sketch, explain the application development life cycle. **(Dec/Jan 2010) (10 Marks)**
- 11) Differentiate between storage-centric IT architecture and server-centric IT architecture.  
**(Dec/Jan 2013) (08 Marks)**
- 12) Define problem size and problem access. **(Dec/Jan 2013) (06 Marks)**
- 13) Explain the benefits of storage networks on business applications. **(Dec/Jan 2013) (06 Marks)**

**Unit-2**

- 1). Explain the following RAID levels with necessary block diagrams:
  - i) RAID 0    ii) RAID 10. **(Dec/Jan 2014) (10 Marks)**
- 2). Describe the necessary technique which helps to protect the data against any catastrophic Situations in a networks, with neat diagram. **(Dec/Jan 2014) (10 Marks)**
- 3). Describe different cases where I/O channels can be designed with built in redundancy. Which cable is best? **(June/July 2011) (10 Marks)**
- 4). Explain briefly how parity blocks are calculated in RAID4 and RAID5. How RAID5 overcomes limitations of RAID4? **(June/July 2011)(10 Marks)**
- 5) Explain RAID 0 level or Block-by-Block striping? **(June/July 2011) (10 Marks)**
- 6) How are the disk storage systems classified based on its complexity? Explain just a bunch of disks [JBOD] **(May/June 2010)(10 Marks)**
- 7) Define the two main goals of RAID. What is a RAID level and explain the use of hot spare disks for all RAID levels? **(Dec/Jan 2012)(10 Marks)**
- 8) With a neat diagram, explain the architecture of intelligent disk storage System [dss]. **(Dec/Jan 2012) (10 Marks)**
- 9) Explain RAID 1 level or Block-by-Block mirroring? **(Dec/Jan 2012)(10 Marks)**
- 10) Compare the principle of operation in RAID 0+1 and RAID 10 level? **(May/June 2010)(10 Marks)**
- 11) Describe the two types of caches are designed to accelerate write and read accesses to physical hard disks? **(June/July 2011) (10 Marks)**
- 12) With a neat diagram, explain the architecture of intelligent disk storage system. **(Dec/Jan 2013) (06 Marks)**
- 13) With a neat diagram, explain the RAID<sub>10</sub> and RAID<sub>0+1</sub>. **(Dec/Jan 2013) (06 Marks)**
- 14) Describe the input output techniques used in disk storage system in order to increase fault – tolerance of systems. Write a note on JBOD. **(Dec/Jan 2013) (08 Marks)**

**Unit-3**

- 1) Explain the importance of each layer in the fibre channel protocol stack, with neat diagram. **(Dec/Jan 2014) (10 Marks)**
- 2) Explain with a neat diagram, the physical I/O path from CPU to the storage system. **(Dec/Jan 2014) (10 Marks)**
- 3) Explain briefly the acceleration of hard disk access. **(June/July 2011)(10 Marks)**
- 4) Explain SCSI. **(June/July 2011)(10 Marks)**
- 5) What are the two major goals of RAID system? Explain the three major techniques used in RAID configurations **(May/June 2010 ) (10 Marks)**
- 6) Explain fiber channel, with reference to protocol stack, addressing modes and login techniques. **(May/June 2010) (10 Marks)**
- 7) What is zoning? What are the advantages of zoning? Explain the various types of zoning? **(Dec /Jan 2010)(10 Marks)**
- 8) With a neat sketch, explain the types of arbitrated loops? **(Dec/Jan2010) (10 Marks)**
- 9) Show how the communication of a public loop device with a device in the fibre can be accomplished? **(10 Marks) (Dec/Jan2012)**
- 10) Explain the various hardware components used in Fibre channel SAN? **(Dec/Jan 2010) (10 Marks)**
- 11) Write a short note on Interoperability of Fibre Channel SAN **(Dec/Jan 2012) (10 Marks)**
- 12) What are the different protocols available for transmitting storage data traffic over TCP/IP? Explain the use of these protocols? **(May/June 2010) (10 Marks)**
- 13) What are the advantages and disadvantages of IP-storage in relation to the FC? **(Dec/Jan 2010)(10 Marks)**
- 15) Explain briefly fibre channel link, ports and topologies. **(Dec/Jan 2013) (10 Marks)**
- 16) Write short notes on SCSI. **(Dec/Jan 2013) (05 Marks)**
- 17) With reference to FC protocol stack, explain and login and addressing. **(Dec/Jan 2013) (05 Marks)**

## Unit-4

- 1) Explain network attached storage (NAS), with a neat diagram. **(Dec/Jan 2014) (10 Marks)**
- 2) Clearly bring out the difference between the fibre channel and NAS. **(Dec/Jan 2014) (10 Marks)**
- 3) Explain briefly layers of FC protocol stack. **(June/July 2011) (10 Marks)**
- 4) Explain briefly fiber channel port types. **(June/July 2011)(10 Marks)**
- 5) Compare NAS and fiber channel SAN. **(May/June 2010)(10 Marks)**
- 6) Write an explanatory note on shared disk file system **May/June 2010)(10Marks)**
- 7) Summarize the issues that are important to know and understand to facilitate a long term productive NAS configuration? **(Dec/Jan 2010)(10 Marks)**
- 8) Explain the NAS hardware architecture? **(June/July 2010) (10 Marks)**
- 9) Explain the NAS software architecture? **(Dec/Jan 2012) (10 Marks)**
- 10) Explain the significance of NAS as a storage system? **(Dec/Jan 2012) (10 Marks)**
- 11) Explain NAS with its advantages and disadvantages. **(Dec/Jan 2013) (06 Marks)**
- 12) Write an explanatory note on shared disk file system. **(Dec/Jan 2013) (06 Marks)**
- 13) Explain the performance bottlenecks in file server and compare NAS with fibre channel SAN. **(Dec/Jan 2013) (08 Marks)**

## Unit-5

- 1) With a neat diagram, explain storage virtualization. **(Dec/Jan2014) (10 Marks)**
- 2) Explain symmetric and asymmetric storage virtualization in the network.  
**(Dec/Jan 2014) (10 Marks)**
- 3) Explain performance bottleneck in file servers. **(June/July 2011) (10 Marks)**
- 4) Explain volume manager. **(June/July 2011) (10 Marks)**
- 5) Define NAS. **(June/July 2011) (10 Marks)**
- 6) What is virtualization? Discuss the four forms of virtualization. Describe the implementation consideration for virtualization**(May/June 2010)(10 Marks)**
- 7) Explain storage virtualization at block level, with a necessary diagram.  
**(May/June 2010)(10 Marks)**
- 8) With a neat diagram, explain NAS and mention its advantages and disadvantages?  
**(June/july 2010) (10 Marks)**
- 9) What is performance bottleneck in file servers? Explain? **(Dec/jan 2010) (10 Marks)**
- 10) write a short note on the following:
  - (a) The Direct Access File System (DAFS)
  - (b) The General Parallel File system (GPFS) **(Dec/jan 2012) (20 Marks)**
- 11) Describe the working principle of shared disk file systems? **(June/july 2010) (10 Marks)**
- 12) Compare NAS, Fibre Channel SAN and iSCSI SAN? **(Dec/jan 2010) (10 Marks)**
- 13) Explain briefly NAS hardware components. **(Dec/Jan 2013) (10 Marks)**
- 14) Explain NAS as a storage system. **(Dec/Jan 2013) (10 Marks)**

## Unit-6

- 1). Explain fibre channel switch and Host Bus Adapter (HBA). **(Dec/Jan 2014) (10 Marks)**
- 2). With a neat diagram, explain the configuration of simple bridge / router over fibre channel in a SAN environment. **(Dec/Jan 2014) (10 Marks)**
- 3) Explain storage virtualization. List out its objectives. **(June/July 2011) (10 Marks)**

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- 4) Explain briefly general requirements and considerations for implementation of Virtualization. **(June/July 2011) (10 Marks)**
- 5) What is meant by storage virtualization on block level or file level? **(10 Marks)**
- 6) Write the advantages and disadvantages of storage virtualization on the server? **(Dec/jan 2011) (10 Marks)**
- 7) Write the advantages and disadvantages of storage virtualization on the storage device levels? **(June/July 2010) (10 Marks)**
- 8) Write the advantages and disadvantages of storage virtualization on the storage network? **(Dec/Jan 2012) (10 Marks)**
- 9) What is symmetric storage virtualization? Write its advantages and disadvantages? **(Dec/jan 2011) (10 Marks)**
- 10) What is asymmetric storage virtualization? Write its advantages and disadvantages? **(June/July 2010) (10 Marks)**
- 11) Explain briefly the general requirements and considerations for implementation of virtualization. **(Dec/Jan 2013) (10 Marks)**
- 12) List out the advantages and disadvantages of virtualization on server level. **(Dec/Jan 2013) (05 Marks)**
- 13) Write a note on symmetric storage virtualization. **(Dec/Jan 2013) (05 Marks)**

## Unit-7

- 1). With a neat diagram, illustrate the basic components of the switch operating system. **(Dec/Jan 2014) (10 Marks)**
- 2). Give a view of SAN as an entire solution for implementing a SAN configuration into a data center. Also indicate the main challenges faced during its implementation. **(Dec/Jan 2014) (10 Marks)**
- 3) Define storage area network and its components. **(June/July 2011) (10 Marks)**
- 4) Discuss the following major components of a SAN.
- |                       |                   |                                    |
|-----------------------|-------------------|------------------------------------|
| (a) Network Part      | (b) Hardware Part | (c) Software Part                  |
| (d) Connectivity Part |                   | <b>(June/July 2011) (10 Marks)</b> |

- 5) What is the need of a Fibre Channel Switch? Explain the different types of ports defined by a FC-Switch? **(Dec/Jan 2012) (10 Marks)**
- 6) What is HBA? Explain the HBA's basic functions with a neat sketch? **(Dec/Jan 2012) (10 Marks)**
- 7) Write a short note on JBOD, RAID and Bridges & Routers? **(June/July 2010) (10 Marks)**
- 8) Define Frame, Sequence and Exchange. Explain the classes of operation defined by the FC Standard useful to data storage operations? **(Dec/Jan 2010) (10 Marks)**
- 9) Explain in detail, the various fabric OS services. **(Dec/Jan 2013) (05 Marks)**
- 10) Define storage area network and its components. **(Dec/Jan 2013) (05 Marks)**
- 11) Explain class 1, 2, and 3 operations defined by FC standard. **(Dec/Jan 2013) (06 Marks)**
- 12) With a neat figure, describe, host bus adapter. **(Dec/Jan 2013) (04 Marks)**

## Unit-8

1). Discuss with a neat diagram of physical configuration management for SAN.

**(Dec/Jan 2014) (10 Marks)**

2). What are the aspects to be considered for availability metrics for managing availability for storage networks? **(Dec/Jan 2014) (10 Marks)**

3) Acceleration of hard disk access **(June/July 2011) (10 Marks)**

4) Briefly explain the external service level for storage networks? **(June/July 2010) (10 Marks)**

5) Describe the physical configuration management for SANs? **(Dec/Jan 2012) (10 Marks)**

6) Describe the logical/software configuration management for SANs? **(Dec/Jan 2012) (10 Marks)**

7) Describe the physical configuration management for NAS? **(Dec/Jan 2010) (10 Marks)**

8) Describe the logical/software configuration management for NAS? **(June/July 2011) (10 Marks)**

9) Describe the guidelines which are considered in establishing a reasonable plan to support SAN or NAS configurations? **(Dec/Jan 2011) (10 Marks)**

10) List and define the basic security elements, can be applied to different aspects of storage networks? **(June/July 2011) (10 Marks)**

11) Write notes on :

SAN management applications. **(Dec/Jan 2013) (10 Marks)**

Storage security technologies. **(Dec/Jan 2013) (10 Marks)**