

## STORAGE NETWORKS QUESTION BANK

1. A computer program that provides the logic for computing operations
  - a. Application
  - b. Network
  - c. storage
  - d. Host
  
2. ....is special software that permits the operating system to interact with a specific device, such as a printer, a mouse, or a disk drive.
  - a. Volume manager
  - b. Device Driver
  - c. File system
  - d. Logical Volume manager
  
3. A typical HDD consists of one or more flat circular disks called
  - a. Spindle
  - b. Platter
  - c. rotator
  - d. Read and Write Head
  
4. Internal transfer rate in disk is.....
  - a. is the speed at which data moves from a platter's surface to the internal buffer (cache) of the disk
  - b. . is the speed at which data moves from a spindle's surface to the internal buffer (cache) of the disk.
  - c. the rate at which data can move through the interface to the HBA.
  - d. . the rate at which data can move through the HBA to the Interface.
  
5. The time taken by the R/W head to move across the entire width of the disk, from the innermost track to the outermost track is called as
  - a. Full Stroke

b. Average

c. Track-to –Track

d .Half Stroke

6. The relationship between controller utilization and average response time is given as

a. Average response time (TR) = Service time (TS) / (1 +Utilization)

b. Average response time (TR) = Service time (TS) / (1 – Utilization)

c. Average response time (TR) = (Service time (TS) -1)/ Utilization

d. Average response time (TR) =( Service time (TS) +1)/ Utilization

7. which technique stores same data on two different disk drives, yielding two copies of the data.

a. Mirroring

b.Monitoring

c.parity

d. Striping

8.which technique to spread data across multiple drives (more than one) to use the drives in parallel.

a. Mirroring

b.Monitoring

c.parity

d. Striping

9. Which of the following RAID levels guarantees double disk failure protection?

a) Raid 5

b) Raid 6

c) Raid 0+1

d) Raid 0+5

10. What is the minimum number of disks needed for Raid level 5?

a) 2

b) 3

c) 4

d) 5

11. Which of the following is correct about hardware RAID controllers?

- a) Volume management is performed by the server
- b) Volume management is performed by controller card
- c) Dedicated cache memory decreases server write performance
- d) Parity calculation by the server and cache memory in the RAID controller increases read and write performance

12. Which RAID type doesn't use parity for data protection?

- a) RAID 1
- b) RAID 4
- c) RAID 6
- d) RAID 5

13. Which one of these is characteristic of RAID 5?

- a) No Parity
- b) Distributed parity
- c) All parity in a single disk
- d) Double Parity

14. What is the minimum number of disks required for RAID1?

- a) 1
- b) 4
- c) 2
- d) 5

15 .An I/O system with single disk gets on average 50 I/O requests per second and the average time for the disk to service an I/O request is 10 ms,utilization of I/O system would be

- a.0.2
- b. 0.5
- c.0.8
- d.1.5

16. The front end in intelligent storage system provides the interface between.

- a. cache and the physical disks
- b. cache and the storage system
- c. the storage system and the host
- d. None of the above.

17. Acronymy for LUN in intelligent storage system

- a. Logical Uniform Number
- b. Logical Unit Number
- c. Logical Unit Name
- d. Logical Uniform Name

18. Alternative name for High-End Storage Systems is

- a. active-active arrays
- b. active-passive arrays
- c. Passive-passive arrays
- d. None of the above

19. Single-mode fiber supports transmission distance up to

- a) 2 km
- b) 5 km
- c) 30km
- d) 10 km

20. A SAN network can have

- a) 1 FC switch
- b) 2 FC switch
- c) There can be many FC switches
- d) No FC switch

21. Which field of the frame header signifies the presence of optional header?

- a) Routing control
- b) Data field control
- c) Frame control
- d) CRC

22. What is SCSI?

- a) Small Computer Simple Interface
- b) System Computer Select Interface
- c) Small Computer System Interface
- d) Small Computer System Interconnect

23. As per the color coding schemes which color is used for multi mode fiber cable

- a) orange
- b) yellow
- c) green
- d) red

24. When a Fiber Channel switch is implemented in a SAN, the network is referred to

- a) Switched Fabric
- b) Domain
- c) Active directory
- d) FC-AL

25. Job of SAN Management Software is

- a. Read the data from storage device
- b. to write data to storage device.
- c.. to provide interfaces between hosts, interconnect devices, and storage arrays,
- d. None of the above.

26. What is the significance E-Port?

- a) Creates an arbitrated loop
- b) Extends the fabric by connecting to other fabrics
- c) Represents un-initialized state of a port
- d) Represents port with disconnected FC link

27. Disk controller driver in DAS architecture is replaced in SAN either with ———

- a. FC Protocol
- b. iSCSI
- c. TCP/IP stack
- d. Any one of the above

28. Identify a network file protocol in the below mentioned set.

- a. FC
- b. CIFS
- c. SCSI
- d. NAS

29. In FC structure which layer maps block I/O SCSI commands into FC frames?

- a. FC-4
- b. FC-1
- c. FC-0
- d. None of the above

30. What are the major benefits of SAN?

- a. Centralized backup
- b. Storage consolidation
- c. LAN-less backup
- d. All of the above

31. A NAS solution is most appropriate for what type of data environment

- a. Secured Access
- b. Shared access
- c. Remote access
- d. Parallel access

32. Benefits of NAS is

- a. Comprehensive access to information
- b. Improved efficiency
- c. Centralized storage
- d. All of the above.

33. SCSI is mapping of

- a) SCSI over TCP/IP
- b) IP over SCSI
- c) FC over IP
- d) None of the mentioned

34. iSCSI names are:

- a) Globally unique and temporary
- b) Local to the setup
- c) Globally unique and permanent
- d) Local to the setup and temporary

35. Which of the following is not true of iSCSI names?

- a) iSCSI names are associated with iSCSI nodes (targets and initiators).
- b) iSCSI names are associated with n/w adapter cards
- c) iSCSI names are world wide unique.
- d) iSCSI names are permanent.

36. Discovery session in iSCSI is used for:

- a) Discovering iSCSI targets and their TargetAddresses
- b) Probing Luns on iSCSI targets
- c) Probing New Luns
- d) None of the mentioned

37. Which of the following is not a non volatile storage device?

- a) Memory Stick
- b) Hard Disk
- c) Random Access Memory
- d) NVRAM

38. Pick the wrong statement about the hard disk?

- a) Hard disk has multiple platters and each platter has two read/write heads one on each side
- b) It's a non-volatile & random access storage device

- c) Hard disk can only have IDE or USB interface
- d) Data Transfer rate is over 80 MBPS

39. Which of the following provides byte level striping?

- a) RAID 6
- b) RAID 4
- c) RAID 2
- d) RAID 5

40. Which of the following are true. Logical Volumes \_\_\_\_\_

- a) Can span across multiple volume groups
- b) Can span across multiple physical volumes
- c) Can be constructed only using a single physical disk
- d) None of the mentioned

41. A logical Extent(LE) and Physical extent(PE) are related as follows

- a) PE resides on a disk, whereas LE resides on a logical volume
- b) LE is larger in size than a PE
- c) LE's are unique whereas PE's are not
- d) A LE can map to more than one PE

42. Concatenation is the technique of

- a) Adding physical volumes together to make a volume group
- b) Filling up a physical volume completely before writing to the next one in a logical volume
- c) writing a block of data onto one disk and then a block onto another disk in an alternate fashion
- d) Increasing the size of a volume by adding more disks

43. the ability of an IT infrastructure to function according to business expectations during its specified time of operation called as

- a. Information availability
- b. Industrial availability
- c.Backup
- d. None of above

44. MTBF stands for

- a. Maximum Time Between Failure
- b. .Minimum Time Between Failure
- c. Mean Time Between Failure

45. Information availability is

- a.  $IA = MTBF / (MTBF - MTTR)$
- b.  $IA = MTBF / (MTBF + MTTR)$
- c.  $IA = MTBF + (MTBF / MTTR)$
- d.  $IA = MTBF - (MTBF / MTTR)$

46. In Business Continuity RPO stands for

- a. Recovery-Point Objective
- b. Recieve Point Objective
- c. Response Point objective
- d. None of the Above

47. The purpose of backup is:

- a) To restore a computer to an operational state following a disaster
- b) To restore small numbers of files after they have been accidentally deleted
- c) To restore one among many version of the same file for multiple backup environment
- d) All of the mentioned

48. Backup of the source data can be created

- a) On the same device
- b) On another device
- c) At some other location
- d) All of the mentioned

49. Which of the following backup technique is most space efficient?

- a) Full backup
- b) Incremental backup
- c) Differential backup
- d) All of the mentioned

50. To decide on a backup strategy for your organization, which of the following should you consider?

- a) RPO
- b) RTO
- c) Both RPO & RTO
- d) None of the mentioned

51. The challenges for data protection are

- a) Taking care of the old data
- b) Backing up the dynamic data
- c) Restoring old data
- d) All of the mentioned



52. The drawback of data mirroring is

- a) Backing up the data
- b) Performance degradation
- c) Difficulty involved in configuring the mirrored volume
- d) All of the mentioned

53. Which one of the below is measured by MTBF?

- a) Tolerance
- b) Life time
- c) Reliability
- d) Quality

54. A system has MTBF of 100,000 hours and MTTR of 30 minutes. What is the average down time of the system in one year?

- a) 2.6 minutes
- b) 1.8 minutes
- c) 18 minutes
- d) 30 minutes

55. Hot backup means

- a. the application is up-and-running, with users accessing their data during the backup process
- b. the application to be shut down during the backup process.
- c. restore a computer to an operational state following a disaster.
- d. None of the above

56. The objective of virtualisation is

- a.Improvement of availability
- b.Improvement of maintainability
- c.Improvement of scalability
- d.All of the Above

57. separation of the storage into the physical implementation level of the storage devices and the logical representation level of the storage for use by operating systems, applications and users called as

- a. storage non-virtulization
- b. Storage Availability
- c.Storage Virtulisation
- d. None of the above.

58. Following one is not an Advantage of Storage Virtualization is

- a. It allows for migrations to be performed quickly.
- b. It allows more than one type of storage array
- c. It eliminate data security risks
- d. It allows anyone to create business opportunities for themselves

59. Following one is not an use of Local Replicas is

- a. Alternative source for backup
- b. slow recovery
- c. Data migration
- d. Decision-support activities, such as reporting or data warehousing

60. collection of raw facts from which conclusions might be drawn called as

- a. information
- b. data
- c. application
- d. none of the above.

61. Key Characteristics of a Data Center is

- a. availability of information when required.
- b. prevent unauthorized access to information.
- c. easy and integrated man-agement of all its elements
- d. all of the above.

62. . I/O requests to disk storage on a SAN are called

- a) File I/Os
- b) SAN I/Os
- c) Block I/Os
- d) Disk I/Os

63. . What's the demerits of DAS ?

- a) Interconnect limited up to 10km
- b) Excessive network traffic
- c) Distance limitations and slow speed
- d) Distance limitations and Inability to share data with other servers

64. Pick odd one out

- a) Mirroring
- b) Striping
- c) Error-correction
- d) Fault tolerance

65. Clients use which protocol to discover SMI Agents on Storage Area Network?

- a) SLP (Service Location Protocol)
- b) AGP (Agent Discovery Protocol)
- c) SMIP (SMI Protocol)
- d) None of the mentioned

66. What will be used by SAN to provide connectivity between hosts and storage?

- a) FC
- b) iSCSI
- c) FC or iSCSI
- d) SCSI

67. Identify the data storage technology used in the data center?

- a) NAS
- b) SAN
- c) DAS
- d) None of the mentioned

68. Which of the following is sequential access storage device?

- a) Hard Disk
- b) CD-ROM
- c) Tape Cartridge
- d) Main Memory

69. Which of the Following is not an off-line storage device?

- a) Tape Cartridge
- b) Flash Memory
- c) Tape Library
- d) CD-ROM

70. Which of the following statements about various hard disks is wrong?

- a) SATA Disks support faster transfer rates and have support for hot swapping
- b) USB Hard disks store data on flash memory
- c) ATA hard disks cannot be connected externally to computer
- d) None of the mentioned

71. Which of the following is false?

- a) NVRAM has built in battery which keeps power applied to it even after the power is switched off
- b) Flash memory can be electrically erased and reprogrammed
- c) Flash memory is used in memory sticks
- d) Flash disk can only have USB interface

72. Which of the following is not true about JBOD?

- a) JBOD can combine hard disks of different sizes into a single unit without loss of any capacity
- b) If a drive in a JBOD set dies then it may be easier to recover the files on the other Drives
- c) JBOD supports data redundancy
- d) JBOD doesn't has any storage controller intelligence

73. Pick odd one out

- a) Mirroring
- b) Striping
- c) Error-correction
- d) Fault tolerance

74. Pick the false statement

- a) RAID Level 1 provides disk mirroring
- b) RAID Level 2 provides bit level striping with Hamming code ECC
- c) RAID Level 4 provides block level striping
- d) RAID Level 5 provides block level striping and error correction information

75. Which of the following is false about tape devices?

- a) A tape drive is a data storage device that reads and writes data stored on a Magnetic tape
- b) Tape drives are used for archival storage of data
- c) Tape media has low unit cost and long archival stability
- d) Tape drives allow random access of data

76. File access protocols operate in which layer of the OSI model

- a) Application
- b) Session
- c) Transport
- d) None of the mentioned

77. NFS & CIFS are

- a) Filesystems
- b) Operating systems
- c) Transport protocols
- d) File access protocols

78. The file access protocols are primary features of

- a) SAN
- b) NAS
- c) Router
- d) Application server

79. NFS doesn't have the following characteristics

- a) Idempotent procedures
- b) Over NetBIOS
- c) Stateless
- d) Uses RPC

80. NIS is used for?

- a) Routing of packets
- b) File sharing
- c) Naming services
- d) Terminal services

81. Which one is a common software fault tolerant model for safety critical jobs such as flight control software?

- a) Active-Active config.
- b) Active-Backup config
- c) N-Version Programming
- d) Failover

82. This consists of the precautions taken so that the effects of a disaster will be minimized.

- a) Data retrieval
- b) Disaster recovery
- c) Archive
- d) Replication

83. This is the practice of collecting computer files that have been packaged together for backup, to transport to some other location, for saving away from the computer so that more hard disks can be made available, or for some other purpose.

- a) Backup
- b) Archive
- c) Migration
- d) Compression

84. This is a feature of storage security that is gaining favor among enterprises that use storage area networks (SANs).

- a) Data Protection
- b) Data de-duplication
- c) Storage encryption
- d) Data compression

85. Without this practice, backing up data is virtually useless.

- a) Data Archival
- b) Data Retrieval
- c) Data quality assurance
- d) Data Recovery

86. Network level virtualization in a SAN fabric can be implemented by having virtualization engine running in

- a) HBA
- b) FC switch
- c) Raid array
- d) Any of the mentioned

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- d) None of the mentioned

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- d) Application server

89. CIFS runs over the following protocols:

- a) TCP/IP
- b) FTP
- c) SNMP
- d) DNS

90. CIFS is used in the following OS

- a) Windows
- b) Unix
- c) Netware
- d) All the mentioned

