18CS822

Eighth Semester B.E. Degree Examination, Jan./Feb. 2023
Storage Area Networks

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. What is data center? Explain key characteristics of data center with a neat diagram. **(05 Marks)**
   b. Explain the evolution of storage architecture with a neat diagram. **(05 Marks)**
   c. Describe volume manager and compute virtualization with a neat diagram. **(10 Marks)**

OR

2 a. Explain disk drive components. **(05 Marks)**
   b. What is a file system? Explain the process of mapping user files to disk storage. **(10 Marks)**
   c. Explain the following keywords:
      (i) Seek time   (ii) Rotational latency   (iii) Data transfer rate. **(05 Marks)**

Module-2

3 a. What is RAID? Explain RAID levels with reference to nested RAID, RAID3 and RAID5 with a neat diagram. **(10 Marks)**
   b. With a neat diagram, explain the structure of read and write operations in cache. **(05 Marks)**
   c. Explain the types of intelligent storage systems. **(05 Marks)**

OR

4 a. Explain cache management and data protection methods. **(05 Marks)**
   b. Explain the components of Intelligent Storage Systems. **(10 Marks)**
   c. Explain the components of fiber channel SAN. **(05 Marks)**

Module-3

5 a. Describe different iSCSI topologies with neat diagram. **(07 Marks)**
   b. What is FCIP? Explain FCIP protocol stack. **(06 Marks)**
   c. Describe the benefits of NAS. **(07 Marks)**

OR

6 a. What is NAS? Explain NAS implementation in detail. **(10 Marks)**
   b. Explain NAS file sharing protocols. **(10 Marks)**

Module-4

7 a. Explain backup and restore operation with neat diagram. **(10 Marks)**
   b. Describe failure analysis in BC. Explain single point of failure how to mitigate single point of failure. **(10 Marks)**

OR

8 a. Define the following terminologies:
      i) MTBF   ii) RPO   iii) MTTR   iv) RTO **(10 Marks)**
   b. Mention backup topologies. List various backup target solution and explain anyone with a neat diagram. **(10 Marks)**

Module-5

9 a. Describe the uses of local replication.   (05 Marks)
   b. Explain storage array based local replication in detail.   (15 Marks)

OR

10 a. Explain host based remote replication with neat diagram.   (10 Marks)
   b. Differentiate between synchronous and asynchronous remote replication modes. (05 Marks)
   c. Explain FCSCAN security architecture with a neat diagram.   (05 Marks)

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