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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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