10CS/IS765

Seventh Semester B.E. Degree Examination, June/July 2015

Storage Area Networks

Time: 3 hrs.

Max. Marks: 100

**Note: *Answer FIVE full questions, selecting
at least TWO questions from each part.***

PART – A

1   a. Explain the evolution of storage technology from non intelligent internal storage ot intelligent network storage. **(10 Marks)**
   b. What are the key requirements for data center elements? **(05 Marks)**
   c. Consider a disk I/O system in which an I/O request arrives at the rae of 80IOPS. The disk service time is 6ms. Compute i) Utilization of I/O controller ii) Total response time iii) Average queue size iv) Total time spent by a request in a queue. If the controller power is doubled or service time is halved, what is the utilization? **(05 Marks)**

2   a. Compare RAID 5 and RAID 6. **(05 Marks)**
   b. With neat diagrams, explain the structure, read and write operations in cache. **(10 Marks)**
   c. An application has 1000 heavy users at a peak of 2IOPS each and 2000 typical users at a peak of 1 IOPs each. With a read/write ratio of 2:1. It is estimated that the application also experiences an overhead of 10 percent for other workloads. Calculate IOPS requirement for RAID 1, RAID 3, RAID 5 and RAID 6. **(05 Marks)**

3   a. Write about SCSI 3 architecture with a neat diagram. **(05 Marks)**
   b. What is the significance of the various layers of SCSI communication model. **(05 Marks)**
   c. Explain the three basic connectivity options in FC Architecture. **(10 Marks)**

4   a. What is NAS? What are its benefits? **(10 Marks)**
   b. Write a note on iSCSI. **(10 Marks)**

PART – B

5   a. Explain the features and benefits of CAS. **(10 Marks)**
   b. What is virtualization? Elaborate on the types of storage virtualization. **(10 Marks)**

6   a. Define the following terms:
      i) Disaster Recovery   ii) Disaster Restart
      iii) Recovery point objective   iv) Recovery time objective. **(10 Marks)**
   b. Explain the three basic topologies used in backup environment. **(10 Marks)**

7   a. Differentiate between full volume mirroring and pointer based full volume replication. **(10 Marks)**
   b. What are the basic approaches to host based remote replication. **(10 Marks)**

8   a. What are the primary security attributes? **(05 Marks)**
   b. Explain the various management tasks in which a storage infrastructure can be classified. **(10 Marks)**
   c. Write a note on threats. **(05 Marks)**

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