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Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020
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 to 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 rate of 80IOPS. The disk service time is 6 ms. 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 RAID5 and RAID6. (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 2 IOPS each and 2000 typical users at a peak of 1 IOPS each, with a read / write ratio of 2 : 1. It is estimated that application also experiences an overhead of 10 percent for other work loads. 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 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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.