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13MCA555

Fifth Semester MCA Degree Examination, June/July 2018
Storage Area Networks

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. What is a data centre? Explain key characteristics of data center elements with the diagram. (10 Marks)
- b. With the help of a neat diagram, explain the components of Disk Drive. (06 Marks)
- c. Consider a disk I/O system in which an I/O request arrives at the rate of 100 IOPS. The disk service time is 8ms. Compute the following
 - i) Utilization
 - ii) Response time
 - iii) Average queue size
 - iv) Time spent by a request in a queue. (04 Marks)
- 2 a. Explain the various RAID techniques. (09 Marks)
- b. Explain the following RAID levels :
 - i) RAID 0
 - ii) RAID 1
 - iii) RAID 3 (06 Marks)
- c. Explain read and write operation with cache. (05 Marks)
- 3 a. With a neat diagram, explain SCSI – 3, Client – Server Model and SCSI communication model. (10 Marks)
- b. Explain Fibre channel protocol stack with a suitable diagram. (10 Marks)
- 4 a. Explain the benefits of NAS. (07 Marks)
- b. Explain the two types of NAS implementations with a neat diagram. (06 Marks)
- c. Explain the factors affecting on NAS performance and availability. (07 Marks)
- 5 a. With the help of diagrams, explain the process of object storage and retrieval in CAS systems. (10 Marks)
- b. Explain the difference forms of virtualization. (10 Marks)
- 6 a. What is business continuity? Explain BC planning life cycle with a neat diagram. (10 Marks)
- b. Explain the reasons for which back up is performed. (06 Marks)
- c. With a neat diagram, explain SAN based backup topology. (04 Marks)
- 7 a. Briefly explain the various storage array based local replication technologies. (10 Marks)
- b. What is storage array based remote replication? Differential between synchronous and asynchronous replication mode. (10 Marks)
- 8 a. Explain capacity monitoring with suitable diagrams. (07 Marks)
- b. Explain the various categories of storage management activities. (05 Marks)
- c. Explain the four security attributes which are under threat. (08 Marks)

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