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Seventh Semester B.E. Degree Examination, July/August 2021 Storage Area Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Describe with suitable diagram RAID 0+1 and RAID 5. Compute the number of disk required in RAID 6 and RAID 1 when an application generates 5200 IOPS with 60% of them being reads, if 15K RPM drive is rated to perform 180 IOPS per drive were used. (10 Marks)
- b. Explain core elements of data center and the key characteristics of classical data center. (10 Marks)
2. a. Explain the logical component of a host
 - i) Operating system
 - ii) Volume manager
 - iii) File system
 - iv) Device drivers. (10 Marks)
- b. List all the benefits of an intelligent storage system and explain Read and Write operation in cache. (10 Marks)
- 3 a. Discuss the process of handling I/O in a NAS environment with help of a diagram. (10 Marks)
- b. Explain Fibre channel architecture with suitable diagram. (10 Marks)
- 4 a. Explain zoning and its type. (10 Marks)
- b. Explain with diagram the process of storing and retrieving objects in OSD. (10 Marks)
- 5 a. Explain briefly the following terminologies.
 - i) Disaster recovery
 - ii) RPO
 - iii) RTO
 - iv) Hot and Cold site
 - v) Data vault. (10 Marks)
- b. List and explain different back up topologies with help of diagram. (10 Marks)
- 6 a. Describe source based data deduplication and Target based data deduplication with the help of diagram. (10 Marks)
- b. Discuss Array based synchronous and Asynchronous Remote Replication mode with help of diagram. (10 Marks)
- 7 a. Explain the different cloud service model. (10 Marks)
- b. Explain the characteristics of cloud computing. (10 Marks)
- 8 a. Explain the steps involved in transitioning from classic data center to cloud computing environment services. (10 Marks)
- b. Explain cloud deployment model. (10 Marks)
- 9 a. Explain how authentication and authorization can be provided to NAS file sharing using Kerberos. (10 Marks)
- b. Explain storage infrastructure management challenges. (10 Marks)
- 10 a. Explain the monitoring parameters and components monitored for storage management. (10 Marks)
- b. Explain how IPSAN can be secured using CHAP authentication technique. (10 Marks)

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.