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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 (10 Marks)
 - i) Operating system
 - ii) Volume manager
 - iii) File system
 - iv) Device drivers.
- 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. (10 Marks)
 - i) Disaster recovery
 - ii) RPO
 - iii) RTO
 - iv) Hot and Cold site
 - v) Data vault.
- 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)

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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.