

Seventh Semester B.E. Degree Examination, June/July 2016

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. What is a data center? Explain key characteristics of data center elements (10 Marks)
b. Explain the various components of disk drive. (06 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 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 techniques on the basis of which RAID levels are defined. (09 Marks)
b. 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 the application also experiences an overhead of 10 percent for other workloads. Calculate the IOPS requirement for RAID1, RAID5 and RAID6. (06 Marks)
c. With a neat diagram, differentiate between write through and write back cache. (05 Marks)
- 3 a. Explain fibre channel with respect to protocol stack, zoning and login types. (10 Marks)
b. Write a note on SCSI-3 architecture. (10 Marks)
- 4 a. What is NAS? Explain the benefits of NAS. (10 Marks)
b. Differentiate between Native and Bridged iSCSI connectivity. (06 Marks)
c. Write a note on iSCSI PDU. (04 Marks)

PART – B

- 5 a. With neat diagrams, explain the concept of object storage and retrieval in CAS systems. (10 Marks)
b. What is storage virtualization? Differentiate between block level and file level virtualization with neat diagrams. (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 backup is performed. (10 Marks)
- 7 a. Describe the various storage array based local replication technologies. (10 Marks)
b. What is storage array based remote replication? Differentiate between synchronous and asynchronous replication mode in it. (10 Marks)
- 8 a. Explain the four security attributes which are under threat. (04 Marks)
b. Write a note on risk triad. (06 Marks)
c. Describe the categories on the basis of which storage management is classified. (05 Marks)
d. Write a note on accessibility monitoring. (05 Marks)

* * * * *