I.T/SNM&R/VIII/CBGS/18-05-2017

Storage Nlw Mgt & Retrival

Q.P. Code :13355

[3 Hours] **[80 Marks]**

Note: 1. Question number 1 is compulsory. Solve any three out of remaining.
2. Draw figure wherever necessary.
3. Assume suitable data wherever necessary.

1 Consider an application that requires 1TB of storage capacity and performs 4900 IOPS. Application I/O size is 4 KB. As it is business critical application, response time must be within an acceptable range. Specification of available disk drive: 10
Drive capacity = 73 GB;
For rotational latency RPMs: 15,000
rpm; Average seek time= 5ms;
Transfer rate: 40 MB/s;
Calculate the number of disks required?
Considering seek time (Rs=5ms) as given above and I/O request arrives at a rate 100 I/Os per second, Calculate Utilization of I/O controller (U), Total Response time (R), Average Queue size and Total time spent by request in a queue.

10

(b) An application that generates 3600 IOPs with 60% reads and 40% writes. Calculate the IOPS generated for RAID level 1, 4 and 6. Also calculate storage efficiency and usable capacity for RAID levels 3, 5 and 6 with number of disks available are 6 and each disk has storage capacity of 100 GB.

2 (a) Explain RAID levels along with the comparison of all RAID levels 10

(b) Explain Information Lifecycle Management for online order processing with the help of diagram 10

3 (a) Explain Intelligent Storage System and its types. 10

(b) Explain FC data transfer and control flow with the help of diagram. 10

4 (a) Explain SCSI communication and command model 10

(b) Explain BC planning lifecycle in detail. Give comparison between RPO and RTO. 10

5 (a) Explain Symmetric and asymmetric virtualization with the help of diagram. 10

(b) Differentiate Boolean based and probabilistic based matching process. 10

6 Write short notes on: (any four) 20
a. Zoned bit recording
b. Journaling and snapshot
c. Local file system and network file system
d. Components and parts of information
e. Document Surrogates
f. Types of indexing