

M. Tech. –III (Computer Engineering) (CBCS – 2015 Course) :

WINTER - 2018

SUBJECT- ELECTIVE – II: STORAGE AREA NETWORK

Day: Thursday
Date: 06/12/2018

W-2018-3189

Time: 11.00 AM TO 02.00 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.
- 4) Assume suitable data if necessary.

SECTION - I

Q.1 Consider a disk I/O system. I/O request arrives at a rate of 100 I/Os per second. (10)
The service time $R_s = 8\text{ms}$. Compute the following measures of disk performance:

- i) Utilization of I/O controller.
- ii) Average Queue size.
- iii) Total Response Time..
- iv) Total time spent by request in the queue.

Now if controller power is doubled the service time is halved, Consequently now $R_s = 4\text{ms}$. In this scenario determine the above measures.

OR

Q.1 What is RAID? Briefly explain the different levels of RAID. (10)

Q.2 Explain in detail the difference between Block and File System store. Elaborate what is journaling and use of Logical volume manager. (10)

OR

Q.2 Illustrate and explain in detail the process of mapping user files to disk storage. (10)

Q.3 List and explain the components of Network Attached Storage (NAS). Discuss in detail the factors affecting the NAS performance and availability. (10)

OR

Q.3 What is intelligent storage system? Describe how are the disk storage system classified based on its complexity? Explain JBOD in detail. (10)

SECTION - II

Q.4 What is storage virtualization? Differentiate between the block level virtualization and file level virtualization with diagrams. (10)

OR

Q.4 Explain in detail the symmetric storage virtualization and asymmetric storage virtualization? Describe the advantages and disadvantages of storage virtualization on the storage devices and storage network. (10)

Q.5 Explain in detail FC architecture. Discuss the various FC topologies. (10)

OR

Q.5 What is iSCSI? Describe in detail the topologies, advantages and limitations of iSCSI. (10)

Q.6 Explain in detail the various ways in which backups can be implemented in a storage environment. (10)

OR

Q.6 What do you understand by the term restore in storage networks? (10)
Explain with diagram i) Restoring from an incremental backup, ii) Restoring from a cumulative backup.

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