Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023

Semester : Semester V - 2021
Course Code : CSE2054
Course Name : Sem V - CSE2054 - Storage Area Networks
Program : B. TECH

Date : 2-NOV-2023
Time : 2:00PM - 3:30PM
Max Marks : 50
Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS **(5 X 2 = 10M)**

1. List the factors that have contributed to the growth of digital data and define them.
(CO1) [Knowledge]
2. Define Seek Time and its specifications.
(CO1) [Knowledge]
3. Recall Connectivity with its physical components.
(CO1) [Knowledge]
4. List the key functions of the RAID controllers.
(CO2) [Knowledge]
5. What is Traditional Storage Provisioning and Virtual Storage Provisioning?
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS **(4 X 5 = 20M)**

6. An Organization is planning to provide centralized data- processing capabilities across the enterprise. Help the organization to Identify the concept to build the same and Explain them about the concept and its components with an example of online transaction system to establish the same in detail.
(CO1) [Comprehension]

7. Mr. Manav, who is a new employee of an organization has been assigned a task to organize its data in a structured hierarchical manner via directories. Help Mr. Manav to accomplish his task by outlining the concept and Illustrate the process of mapping user files to the disk storage subsystem with an LVM with a neat diagram.

(CO1) [Comprehension]

8. Consider an application that generates 4400 IOPS with 40% of them being reads.
a) Calculate minimum number of disks required to meet the workload for RAID level 5 configuration with disk drive specification 170 IOPS.
b) Calculate minimum number of disks required to meet the workload for RAID level 6 configuration with disk drive specification 160 IOPS.

(CO2) [Comprehension]

9. A disk drive is a core element of storage that governs the performance of any storage system but these older disk -array technologies could not overcome performance constraints due to the limitations of disk drives and their mechanical components. Illustrate the new breed of storage solution to overcome the performance constraints of disk drives and explain their components with the help of neat diagram.

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION **(1 X 20 = 20M)**

10. a) In the past, tapes were the most popular storage option for backups because of their low cost. However, tapes had various limitation in terms of performance and management. List the limitations of tapes and Identify the better backup destination for enterprise-class data centers and explain its physical structure and Components in detail with the help of a neat diagram.
b) An intelligent storage system is an integral part of every data center supporting large capacity with high performance which makes it necessary to share it among multiple hosts. Identify the concept which can assign storage resources to hosts based on capacity, availability and performance requirements of applications running on the hosts. Analyze the two ways of storage provisioning with a neat diagram.

(CO2,CO1) [Application]