Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - APR 2023

Semester : Semester IV - B.Tech CSE - 2021
Course Code : CSE2054
Course Name : Sem IV - CSE2054 - Storage Area Networks
Program : IST

Date : 15-APR-2023
Time : 9.30 AM - 11.00 AM
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. Define the terms:
a. Device Driver
b. Logical Volume.

(CO1) [Knowledge]

4. Define RAID and Name the two methods of RAID Implementation.

(CO2) [Knowledge]

5. What is Traditional Storage Provisioning and Virtual Provisioning?

(CO2) [Knowledge]

PART B

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

6. Historically organizations had centralized computers and information storage devices like tape reels and disk packs in their data center but with this evolution of open systems, organizations were not satisfied due to a lot of drawbacks. As a solution to this matter, Illustrate the evolution of Storage Architecture with a neat diagram.

(CO1) [Comprehension]

7. Ms. Sita, an employee of an organization is given the responsibility to govern the overall performance of the storage system environment. She knows that the Disk drive device is actually responsible for the overall performance of the storage system environment but she doesn't know about the factors that are affecting the performance of disk drives. Explain the same with Zoned bit recording with a neat diagram.

(CO1) [Comprehension]

8. Demonstrate the suitable RAID level to be implemented with the help of diagram – we are a media house and we use lot of graphics/video applications – we need large throughputs for videos to get played without any jitter and since we are in publishing business we can't afford downtimes. Even if there is any downtime we would like our data to be quickly reconstructed and enable us to continue with work in less time

(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 ot overcome the performance constraints of disk drives and explain their components with the help of neat diagram.

(CO2) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS **(2 X 10 = 20M)**

10. 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.

(CO1) [Application]

11. Today's data centers house hundreds of disk drives in their storage infrastructure but disk drivers are inherently susceptible to failures due to mechanical wear and tear and other environmental factors, which could result in data loss. Identify the concept and three maintain techniques of the concept that enables leveraging multiple drives as part of a set that provide data protection against drive failures.

(CO2) [Application]