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**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - MAY 2023**

Semester : Semester VI - 2020

Course Code : CSE2054

Course Name : Sem VI - CSE2054 - Storage Area Networks

Program : ISI

Date : 19-MAY-2023

Time : 10.30AM - 12.00PM

Max Marks : 60

Weightage : 30%

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.*
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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. List the key functions of the RAID controllers. (CO2) [Knowledge]
3. Recall Connectivity with its physical components. (CO1) [Knowledge]
4. What is Head Disk Assembly? When does head crash occur. (CO1) [Knowledge]
5. What is Cache. Define Read Cache Hit and Cache Miss. (CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(4 X 5 = 20M)

6. 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]

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. 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]

9. 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]

PART C

ANSWER ALL THE QUESTIONS

(3 X 10 = 30M)

10. Data centers are essential and integral part of any business, whether small, medium or large is size. The core elements of data center work together to process and store data but classic data centers will limit the utilization and increase the total cost of owning an infrastructure. Identify how you can increase the utilization of core elements of data center and reduce the total cost of owning an infrastructure by evolving from classic data centers to virtual data centers. Explain each component in detail.

(CO2) [Application]

11. 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) [Application]

12. An Organization is planning to provide centralized data- processing capabilities across the enterprise. But before building the same, help the organization to describe the key characteristics of data center and tasks involved in managing the data center with the help of a neat diagram.

(CO1) [Application]