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 **PRESIDENCY UNIVERSITY**

  **Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 16-01-2025 **Time:** 09.30 am – 12.30 pm |

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| **School:** SOCSE | **Program:** B. Tech (CCS, CSG, CDV,CIT,CST,CBC,CSD,CBD) |
| **Course Code:** CSE2054 | **Course Name:** Storage Area Networks |
| **Semester**: V | **Max. Marks**: 100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** |
| **Marks** | **26** | **26** | **24** | **24** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** |
| **1** | List the factors that have contributed to the growth of digital data. | **2 Marks** | **L1** | **CO1** |
| **2** | Recall Connectivity with its physical disk components. | **2 Marks** | **L1** | **CO1** |
| **3** | List the different kinds of storage media available. | **2 Marks** | **L2** | **CO1** |
| **4** | List the key functions of RAID controller | **2 Marks** | **L1** | **CO2** |
| **5** | Why is RAID 1 not a substitute for a backup? | **2 Marks** | **L1** | **CO2** |
| **6** | Define RAID and name the two methods of RAID Implementation. | **2 Marks** | **L1** | **CO2** |
| **7** | Define the structure of Object. | **2 Marks** | **L1** | **CO3** |
| **8** | Explain Physical Tape Library and Virtual Tape Library. | **2 Marks** | **L2** | **CO3** |
| **9** | Discuss Backup Targets. | **2 Marks** | **L2** | **CO4** |
| **10** | Explain advantages of distributed memory model. | **2 Marks** | **L2** | **CO4** |

 **Part B**

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| **Answer the Questions Total 80 Marks.** |
| **11.** | **a.** | Define and explain Seek Time, Rotational Latency, Access time with a suitable diagram. | **10 Marks** | **L1** | **CO1** |
|  | **b.** | Explain and create virtualized data center by virtualizing components of data center. | **10 Marks** | **L2** | **CO1** |
| **or** |
| **12.** | **a.** | Define disk drive components with suitable diagram. | **10 Marks** | **L1** | **CO1** |
|  | **b.** | Define file system. Explain the process of mapping user files to disk storage. | **10 Marks** | **L2** | **CO1** |
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| **13.** | **a.** | Define the number of minimum disks required for RAID 0, RAID 1, RAID 3, RAID 5. | **10 Marks** | **L1** | **CO2** |
|  | **b.** | Explain the Cache mirroring and Cache vaulting? | **10 Marks** | **L2** | **CO2** |
| **or** |
| **14.** | **a.** | Define the number of minimum disks required for RAID 5, RAID 6, RAID 0+1 and RAID 1+0. | **10 Marks** | **L1** | **CO2** |
|  | **b.** | Compare High end storage systems to Midrange storage systems with the help of neat diagram. | **10 Marks** | **L2** | **CO2** |

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| **15.** | **a.** | Define Object-Based Storage Architecture with neat diagram. | **10 Marks** | **L1** | **CO3** |
|  | **b.** | Explain the process of storing objects in OSD and retrieving objects in OSD with neat sketch. | **10 Marks** | **L2** | **CO3** |
| **Or** |
| **16.** | **a.** | Name the two types of virtualizations in SAN. | **10 Marks** | **L1** | **CO3** |
|  | **b.** | Illustrate the Block I/O request and Object I/O request. | **10 Marks** | **L2** | **CO3** |

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| **17.** | **a.** | With a neat diagram, explain the steps involved in backup and restore operation. | **10 Marks** | **L2** | **CO4** |
|  | **b.** | Discuss different backup topologies in detail. | **10 Marks** | **L2** | **CO4** |
| **Or** |
| **18.** | **a.** | Summarize backup and recovery considerations. Outline Backup methods with real time example. | **10 Marks** | **L2** | **CO4** |
|  | **b.** | Demonstrate the local replication with its uses and consistency of replicated file system and replicated databases. | **10 Marks** | **L2** | **CO4** |

 **\*\*\*\*\* BEST WISHES \*\*\*\*\***