Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 130004

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
Seventh Semester
Computer Science and Technology
U19CTV42 – INFORMATION STORAGE AND MANAGEMENT
(Regulation 2019)

Time: Three Hours — Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List any two key challenges in managing information in modern storage systems.	2	K2	CO1
2.	Outline the role of a Database Management System (DBMS) in a data center environment.	2	K1	CO1
3.	Define iSCSI in the context of IP SAN.	2	K1	CO2
4.	Specify the main protocols used in NAS file sharing.	2	K2	CO2
5.	State the role of Failure Analysis in Business Continuity.	2	K1	CO3
6.	Compare and contrast Backup Granularity and Recovery Granularity.	2	K2	CO3
7.	Relate the term "Monitoring Parameters" in storage infrastructure.	2	K1	CO4
8.	Recall the significance of the Storage Security Domain in protecting data.	2	K1	CO4
9.	Define data consistency in the context of local replication.	2	K2	CO5
10.	Recall how restore and restart considerations impact the effectiveness of local replication.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Explain in detail about the application of Intelligent Storage Systems to enhance data management efficiency in a modern enterprise. Provide a detailed explanation of the key features and technologies involved. Demonstrate the benefits obtained by applying Intelligent Storage Systems in a modern enterprise setting.	13	K2	CO1
		(OR)			
	b)	Develop a comprehensive data management strategy for a multinational corporation using advanced storage technologies. The developed strategy should address challenges related to data scalability, security, disaster recovery, and include a roadmap for implementation.	13	K3	CO1
12.	a)	Explain in detail about the effectiveness of NAS devices as a storage solution for small to medium enterprises. Consider aspects such as network file sharing, ease of management, scalability, and cost-effectiveness, data security, and integration with existing IT infrastructure. Provide examples to support your evaluation.	13	K2	CO2
		(OR)			
	b)	Explain in detail about the evolution of Storage Area Networks (SAN) from traditional to modern architectures. Discuss the impact of this evolution on data management, connectivity, and overall storage performance. Devise a roadmap for implementation and potential challenges to anticipate.	13	K2	CO2
13.	a)	Illustrate the application of Business Continuity Planning (BCP) principles in a financial institution. Explain the steps involved in the BC Planning Life Cycle and their role in ensuring information availability during a crisis.	13	K2	CO3
		(OR)			
	b)	Summarize the application of different backup methods - full, incremental, and differential in various data recovery scenarios. Provide examples of specific situations where each method is most effective, and elaborate on the advantages and disadvantages of each method.	13	K2	CO3
14.	a)	Explain in detail about the application of various monitoring parameters in managing the storage infrastructure in a large enterprise. Include examples to optimize storage performance and prevent failures.	13	K3	CO4

(OR)

Q.No.		Questions	Marks	KL	CO
	b)	Identify the challenges associated with storage allocation to a new server or host in a dynamic IT environment. Explain the impact of improper allocation on system performance and suggest ways to mitigate these risks.	13	K3	CO4
15.	a)	Explain in detail about different local replication strategies in terms of their effectiveness in maintaining data consistency and providing quick data recovery. Compare the use of snapshots, clones, and other replication technologies in different business scenarios.	13	K2	CO5
		(OR)			
	b)	Illustrate the impact of network infrastructure on the effectiveness of remote replication. Discuss the influence of bandwidth, latency, and network reliability on the performance of remote replication technologies.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Imagine you are the IT manager of a data-driven organization that processes large volumes of critical data daily. Your organization cannot afford significant data loss or extended downtime. You have been tasked with creating an integrated Backup and Archive strategy that ensures minimal data loss and quick recovery in case of a failure. Develop an integrated Backup and Archive strategy for the scenario described above. Include considerations for backup granularity, recovery objectives, backup methods, a detailed architecture, and an operation plan. Use the provided case study to illustrate how your strategy would be implemented in the event of a critical system failure.	15	K6	CO3
		(OR)			
	b)	TechWorld Inc., with data centers in North America, Europe, and Asia, faces a simulated cyberattack on its European data center, resulting in data corruption. Design a network infrastructure for remote replication between the North American and Asian data centers to minimize latency and ensure high throughput. Choose between synchronous and asynchronous replication, justifying your choice based on the need for near real-time data consistency and acceptable recovery objectives. Develop a detailed implementation plan for the remote replication strategy, including technical setup and procedural protocols.	15	K5	CO5