

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Program: B.Tech. CS-CCVT & IT Infra
Course: Storage Technology Foundation
Course Code: CSEG2012

Semester: IV
Time 03 hrs.
Max. Marks: 100

Instructions: This paper consists of three sections as Section A, Section B and Section C having 20, 40 and 40 Marks respectively. The guidelines for each section are given separately at the start of the section. Answer should be point-to-point and precise not going beyond the provided word limit. Use diagrams wherever mentioned/required with examples

SECTION A

S. No.	Question	Marks	CO
Q 1	Give one example that can elaborate the functionalities of core elements of Data center.	04	CO1
Q 2	A large company is considering a storage infrastructure—one that is scalable and provides high availability. More importantly, the company also needs performance for its mission-critical applications. Which storage topology would you recommend (SAN, NAS, IP SAN) and why?	04	CO2
Q 3	Define the following terms: (a) Mirroring (b) Striping	04	CO2
Q 4	With the help of diagram, explain the process of mapping user files to disk storage.	04	CO1
Q 5	Mention the differences between Gateway and Integrated NAS.	04	CO3

SECTION B

Q 6	What would you consider while choosing serial or parallel data transfer in a DAS implementation? Explain your answer and justify your choice.	10	CO3
Q 7	What is the purpose of performing operation backup, disaster recovery and archiving?	10	CO4
Q 8	An engineering design department of a large company maintains over 600,000 engineering drawings that its designer's access and reuse in their current projects, modifying or updating them as required. The design team wants instant access to the drawings for its current projects, but is currently constrained by an infrastructure that is not able to scale to meet the response time requirements. The team has classified the drawings as "most frequently accessed," "frequently accessed," "occasionally accessed," and "archive." (a) Suggest a strategy for design department that optimizes the storage infrastructure by using ILM. (b) Detail the hardware and software components you will need to implement your strategy.	10	CO1

	(c) Research products and solutions currently available to meet the solution you are proposing.		
Q 9	Define Zoning and elaborate the types of zoning with the help of diagram. OR Explain the configuration of Fiber Channel ports used in FC-SAN.	10	CO2
SECTION-C			
Q 10	What is NAS? Explain NAS Device components with the help of diagram.	20	CO3
Q 11	Compare various storage environments on the basis of following parameters: Market Value, Type, Technologies used, Hierarchy, Storage Type, Environment, Scalability, Storage Consolidation, Fault Tolerance, Access Modes, Complexity, Availability, Management Cost. OR With the Help of Diagram, explain each component of Intelligent Storage System.	20	CO2

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SECTION A

S. No.	Question	Marks	CO
Q 1	Mention the differences between Gateway and Integrated NAS.	04	CO3
Q 2	Why is RAID 1 not a substitute for a backup?	04	CO2
Q 3	What purpose does MTBF specification serve in Hard Disk?	04	CO1
Q 4	Mention the differences between Internal and External DAS.	04	CO2
Q 5	Why data categorization is required? What are the challenges of storing and managing unstructured data?	04	CO1

SECTION B

Q 6	There are limited backup devices in a file sharing NAS environment. Suggest a suitable backup implementation that will minimize the network traffic, avoid any congestion, and at the same time not impact the production operations. Justify your answer.	10	CO4
Q 7	What would you consider while choosing serial or parallel data transfer in a DAS implementation? Explain your answer and justify your choice.	10	CO2
Q 8	What are the benefits of using multiple HBAs on a host?	10	CO1
Q 9	Define Zoning and elaborate the types of zoning with the help of diagram. OR Explain the configuration of Fiber Channel ports used in FC-SAN.	10	CO2

SECTION-C

Q 10	With the Help of Diagram, explain each component of Intelligent Storage System.	20	CO2
Q 11	What is NAS? Explain NAS Device components with the help of diagram. OR Business continuity is the preparation for, response to and recovery from an application outage that adversely affects business operations. To maintain it, business continuity solutions are proposed, backup and restore is among one of them. Explain how it works with step-wise operation.	20	CO3, CO4

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