

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2021

Course: Storage Technology Foundation
Program: B. Tech. CSE (OSS)
Course Code: CSEG2012

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

SECTION A

- 1. Each Question will carry 5 Marks**
- 2. Instruction: Complete the statement / Select the correct answer(s)**

S. No.	Question	CO
Q1	In _____ storage architecture, storage devices cannot be shared with other servers, while in _____ architecture, storage devices are shared with multiple servers.	CO1
Q2	Library management system is an example of _____ data that can be organized in rows and columns, while e-mail message is an example of _____ data that cannot be organized in rows and columns. _____ data is more difficult to query and retrieve by applications.	CO1
Q3	Disk mirroring improves _____ performance but _____ performance is _____ than that in a single disk.	CO2
Q4	Which of the following is NOT a node in fibre channel network. a. host b. storage array c. tape library d. RAM	CO3
Q5	The basic information unit in the iSCSI environment is: a. protocol data unit b. user datagram unit c. sector block unit d. cylinder, head and sector	CO3
Q6	Business _____ is an integrated and enterprise-wide process consisting of all activities that a business must perform to mitigate the impact of _____ and _____ downtime.	CO5

SECTION B

- 1. Each Question will carry 10 Marks**
- 2. Instruction: Write short / brief notes**

Q1	What are the components that constitute disk service time? Which of these components contributes the largest percentage of the disk service time in a random I/O operation?	CO2
Q2	Discuss any two methods of protecting data during cache failure.	CO2

Q3	Explain how storage migration using block-level storage virtualization is different from migration using traditional methods	CO3
Q4	How do jumbo frames affect the performance of Network-Attached Storage (NAS)?	CO3
Q5	<p>A system has three components and requires all three to be operational 24 hours, Monday through Friday. Failure of component 1 occurs as follows:</p> <p>Monday = No Failure Tuesday = 5 a.m. to 7 a.m. Wednesday = No failure Thursday = 4 p.m. to 8 p.m. Friday = 6 a.m. to 11 a.m.</p> <p>Calculate the Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) of component 1.</p>	CO5
SECTION C		
<p>1. Each Question carries 20 Marks 2. Write long answers</p>		
Q1	<p>You are storage architect of a fast-growing IT organisation that is spread over a large geographical area. You are given the task of proposing a high performance, scalable and highly available storage solution for the organisation. Design the storage solution and explain the need for the various components in your solution. You can make suitable assumptions.</p> <p style="text-align: center;">OR</p> <p>Discuss the advantages and limitations of RAID 0, RAID 1, RAID 10, RAID 01, RAID 3, RAID 4, RAID 5 and RAID 6. You work in an organisation with big data needs and you need to implement a RAID level for storage efficiency, performance, and security. Explain which RAID level would you select for these goals. Make suitable assumptions where necessary.</p>	CO4