Name: Enrolment No:	UPES

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

Course: Storage Technology Foundation **Semester: VI**
Program: B.Tech. CSE+CyberLaw
Course Code: CSEG333
Time: 03 hrs. **Max. Marks: 100**

Instructions: Students are supposed to assume any missing data and has to give examples/draw diagrams wherever applicable

SECTION A [20 Marks]

S. No.		Marks	CO
Q1	What are the core elements of data center that support business activities of the organization?	4	CO1
Q2	Why you will not prefer DAS for UPES data centre?	4	CO2
Q3	Storage systems has its own cache. Why?	4	CO3
Q4	Illustrate the RAID implementation in SAN.	4	CO4
Q5	How you can maintain business continuity. Illustrate in detail	4	CO5
SECTION B [40 Marks] (Attempt any one question from 9 or 10)			
Q6	What are the different types of Backup Granularity? Recommend with different cases?	10	CO4 + CO5
Q7	Illustrate various storage technologies and its architecture.	10	CO3+ CO4
Q8	Relate different DAS connectivity options with a proper diagram and discuss.	10	CO4
Q9	Analyze the problems raised while dealing with unstructured data and explain	10	CO4+ CO5
	OR		
Q10	Analyze and illustrate the various impact of random and sequential I/O in different RAID configurations.	10	CO4+ CO5
SECTION-C [40 Marks] **Note*** Q11 is compulsory and attempt any one question from Q12 and Q13			
Q11	Business continuity is the preparation and responsiveness for the recovery of an application outage. Such outage/downtime can adversely affects business operations. To maintain the business continuity many solutions proposed for backup and restore. Explain how backup/recovery process can be implemented for 24X7 uptime of IT services	20	CO3,CO4CO5
Q12	You have been deputed the role of IT Manager at UPES. What is your core responsibility in managing and monitoring UPES data Centre? Discuss and explain with proper examples.	20	CO3,CO4CO5
	OR		

Q13	*UMBRELLA CORPORATION* is considering to deploy a storage infrastructure – The infrastructure must be scalable and with high uptime. UMBRELLA CORPORATION also needs robust performance for all its mission-critical applications. Which storage topology would you recommend (SAN, NAS, IP SAN) and why? Discuss, compare and elaborate with diagram.	**20**	**CO3,CO4CO5**

Name: Enrolment No:	

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

Course: Storage Technology Foundation/CSEG333 **Semester: IV**
Program: B.Tech. CSE+CyberLaw.
Course Code: CSEG333
Time: 03 hrs. **Max. Marks: 100**

Instructions: Students are supposed to assume any missing data and has to give examples/draw diagrams wherever applicable

SECTION A [20 Marks]

S. No.		Marks	CO
Q1	How you can maintain business continuity. Illustrate in detail.	4	CO1
Q2	Explain various IP storage deployment model in detail	4	CO2
Q3	Why you will prefer NAS for your Data Centre. Discuss.	4	CO3
Q4	Illustrate importance of HBA in SAN technology.	4	CO4
Q5	How you can improve business continuity for any organization?	4	CO5
SECTION B [40 Marks] (Attempt any one question from 9 or 10)			
Q6	SAN device is a logically segmented into groups using access management technique. Discuss and elaborate it with usage.	10	CO4 + CO5
Q7	Many of the organizations are using NAS storage technology. How do you think it is suited for the UPES? Discuss with proper and neat diagram	10	CO3+ C4
Q8	Analyze and illustrate the various impact of random and sequential I/O in different RAID configurations.	10	CO4
Q9	Explain the purpose of performing operation backup, disaster recovery and archiving.	10	CO4+ CO5
	OR		
Q10	Illustrate the problems that can raise while dealing with unstructured data. Suggest a solution to overcome such problem.	10	CO4+ CO5
SECTION-C [40 Marks] **Note*** Q11 is compulsory and attempt any one question from Q12 and Q13			
Q11	*"SKYNET Systems Cyber Corporation"* using tape as its primary backup storage media for their backups as per below: • Full backups on every Sunday. • Incremental backups on Monday through Saturday. • The SKYNET's Data Centre using various types of backup servers. • The mail-server and Antivirus server shut down during the backup process.	20	CO3,CO4CO5

	Due to the decentralized backup environment, recovery of the data may not accurate. Too many tapes has to be mounted to perform a full recovery in case of a complete failure. The time needed to recover is too lengthy. The company would like to deploy an easy-to-manage backup environment. SKYNET want to reduce the downtime of the mail-server and Antivirus server during backup process, and to minimize the tapes required for full recovery during unexpected failures. Propose a backup and recovery solution to address the company's need. Justify how your solution ensures that above-mentioned points will get resolved.		
Q12	*EAGLE EYE SYSTEMICS* is considering to deploy a storage infrastructure – The infrastructure must be scalable and with high uptime. The organization also needs robust performance for all its mission-critical applications. Which storage topology would you recommend (SAN, NAS, IP SAN) and why? Discuss and elaborate with diagram.	**20**	**CO3,CO4CO5**
	OR		
Q13	You have been deputed the role of IT Manager at UPES. What is your core responsibility in managing and monitoring UPES data Centre? Discuss and explain with proper examples.	**20**	**CO3,CO4CO5**