SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CYBER SECURITY

QUESTION BANK

VIII SEMESTER

1908009 - Information Storage and Management

Regulation – 2019

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1908009 - INFORMATION STORAGE AND MANAGEMENT
SEM/ YEAR :VIII SEMESTER / VII YEAR

UNIT – I : STORAGE SYSTEMS

Introduction to Information Storage and Management: Information Storage, Evolution of Storage Technology and Architecture, Data Center Infrastructure, Key Challenges in Managing Information, Information Lifecycle. Storage System Environment: Components of the Host. RAID: Implementation of RAID, RAID Array Components, RAID Levels, RAID Comparison, RAID Impact on Disk Performance, Hot Spares.

UNIT–I [PART-A]

Q.No	Question	Competence	Level
1.	What is mean by Information?	Remembering	BTL1
2.	What is mean by data?	Remembering	BTL1
3.	List the types of data?	Understanding	BTL2
4.	List the factors for growth of digital data?	Understanding	BTL2
5.	What is mean by store devices?	Understanding	BTL2
6.	How will you store the data give examples?	Analyzing	BTL4
7.	Summarize about Data Center?	Understanding	BTL2
8.	What are the core elements of data center?	Understanding	BTL2
9.	Discover the Key characteristics of data center elements.	Applying	BTL3
10.	How will you manage the storage infrastructure?	Analyzing	BTL4
11.	Define ILM.	Remembering	BTL1
12.	Analyze the characteristics of ILM.	Analyzing	BTL4
13.	Discover the benefits of ILM	Applying	BTL3
14.	What are the components of storage environment	Understanding	BTL2
15.	What is mean by Information storage	Understanding	BTL2
16.	Define Host.	Remembering	BTL1
17.	What are the physical components of host?	Understanding	BTL2
18.	Name the components of CPU	Understanding	BTL2
19.	Differentiate between RAM and ROM	Evaluate	BTL3
20.	What are the types of communication devices	Remembering	BTL1
21.	How bits are transmitted through the bus?	Analyzing	BTL4
22.	What is mean by bus?	Applying	BTL3
23.	What are the disk drive components	Remembering	BTL1
24.	Name some of the common File systems?	Understanding	BTL2
25.	What is mean by RAID?	Remembering	BTL1
26.	What are the different types of RAID?	Remembering	BTL1

UNIT–I[PART-B]

Q.No	Question		Marks	Competence	Level
1.	-	Explain in detail about Information storage	13	Understanding	BTL2
2.	-	Discuss in detail about Evolution of Storage Technology and Architecture	13	Understanding	BTL2
3.	-	Illustrate about Key characteristics of data center elements	13	Applying	BTL3
4.		Analyze order processing system and explain core elements of Data center with Example.	13	Analyzing	BTL4
5.	-	Explain in detail about Host and its physical components	13	Understanding	BTL2

6.	A	Analyze the Key management activities in Managing Storage Infrastructure	07	Analyzing	BTL4
	B	Explain about Key Challenges in Managing Information	06	Understanding	BTL2
7.	-	Explain in detail about Information Lifecycle Management	13	Understanding	BTL2
8.		Summarize about ILM Implementation	13	Understanding	BTL2
9.	A	Explain about Zoned Bit Recording	07	Remembering	BTL1
	B	Discuss in detail about Logical Block Addressing	06	Remembering	BTL1
10.	-	Illustrate about Connectivity and components of connectivity	13	Applying	BTL3
11.	-	Explain about Storage and its importance	13	Remembering	BTL1
12	-	Explain about structure of Physical structure	13	Understanding	BTL2
13	-	Discuss in detail about various factors that affect the performance of disk drives	13	Understanding	BTL2
14	-	Summarize about Logical components of the Host	13	Understanding	BTL2
15	-	Explain about Various common file systems	13	Understanding	BTL2
16	-	Evaluate about RAID Array Components	13	Evaluate	BTL5
17		Explain about RAID Impact on Disk Performance	13	Understanding	BTL2
UNIT-I[PART-C]					
1	Discuss in detail about Data Center Infrastructure		15	Understanding	BTL2
2	Evaluate Information Lifecycle and implementation of ILM		15	Evaluating	BTL5
3	Analyze Components of a Storage System Environment		15	Analyzing	BTL4
4	Explain in detail about Disk Drive Components		15	Understanding	BTL2
5	Analyze about RAID and explain about RAID Levels		15	Analyzing	BTL4

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UNIT–II STORAGE NETWORKING TECHNOLOGIES

Direct–Attached Storage and Introduction to SCSI: Types of DAS, DAS Benefits and Limitations, Disk Drive Interfaces, Introduction to Parallel SCSI, SCSI Command Model. Storage Area Networks: Fiber Channel, SAN Evolution, SAN Components, Fiber Channel Connectivity, Fiber Channel Ports, Fiber Channel Architecture, Zoning, Fiber Channel Login Types, Fiber Channel Topologies.

UNIT–II [PART-A]

Q.No	Question	Competence	Level
1.	What is mean by DAS?	Remembering	BTL1
2.	List out Types of DAS	Understanding	BTL2
3.	Differentiate between internal and external DAS?	Evaluating	BTL5
4.	What are the benefits of DAS?	Remembering	BTL1
5.	Discuss the limitations of DAS	Understanding	BTL2
6.	What is mean by IDE/ATA?	Remembering	BTL1
7.	Discuss the uses of SATA	Understanding	BTL2
8.	Compare IDE/ATA with SCSI.	Evaluating	BTL5
9.	List the layers in SCSI Communication model?	Understanding	BTL2
10.	Draw the CDB structure	Evaluating	BTL5
11.	What is mean by operation code?	Remembering	BTL1
12.	Discuss about control field?	Understanding	BTL2
13.	What is mean by Fibre Channel?	Remembering	BTL1
14.	What is mean by SAN?	Remembering	BTL1
15.	List the components of SAN.	Understanding	BTL2
16.	What is mean by cabling?	Understanding	BTL2
17.	What are the commonly used interconnected devices?	Remembering	BTL1
18.	What is mean by point to point FC configuration?	Remembering	BTL1
19.	Discuss the purpose of storage arrays?	Remembering	BTL1
20.	Discuss the limitations of FC- AL configuration?	Understanding	BTL2
21.	What are the uses of Fibre channel switced fabric?	Remembering	BTL1
22.	List the fire Channel Ports.	Understanding	BTL2
23.	List out some protocols in FC -4 upper layer	Understanding	BTL2
24.	What is mean by zoning?	Remembering	BTL1

UNIT–II[PART-B]

Q.No		Question	Marks	Competence	Level
1.		Explain about DAS and types of DAS?	13	Remembering	BTL1
2.		Analyze and Exaplain about various disk drive interfaces?	13	Analysing	BTL4
3.	-	Discuss in detail about Evolution of SCSI	13	Understanding	BTL2
4.		Explain in detail aboutSCSI-3 client server architecture model	13	Understanding	BTL2
5.	-	Discuss about SCSI Communication model	13	Understanding	BTL2
6.	A	Summarize about SCSI ports	07	Understanding	BTL2
	B	Explain about Parallel SCSI addressing	06	Understanding	BTL2

7.	-	Analyze about SAN and Explain about its evolution	13	Analysing	BTL4
8.		Describe about Fibre channel arbitrated Loop	13	Understanding	BTL2
9.	A	Explain about Direct Attached Storage	07	Understanding	BTL2
	B	Discuss in detail about nodes and interconnected devices in SAN	06	Understanding	BTL2
10.	-	Summarize about Fibre channel switched fabric in detail	13	Understanding	BTL2
11.		Explain about various Fibre channel ports	13	Understanding	BTL2
12.	-	Analyze about Fibre channel protocol stack	13	Analyzing	BTL4
13	-	Discuss about Fibre channel addressing	13	Understanding	BTL2
14	-	Discuss in detail about FC Frame.	13	Understanding	BTL2
15	-	Summarize about FC flow control and classes of service	13	Understanding	BTL2
16	-	Explain in detail about Core - Edge Fabric	13	Remembering	BTL1
17	-	Explain about EMC Connectrix	13	Remembering	BTL1
UNIT-II[PART-C]					
1	Explain in detail about Direct Attached Storage		15	Understanding	BTL2
2	Evaluate various SCSI -3 Architecture		15	Evaluating	BTL5
3	Analyze about SCSI Command Model and Explain in Detail		15	Analyzing	BTL4
4	Explain in detail about various components of SAN		15	Understanding	BTL2
5	Explain in detail about FC topologies		15	Understanding	BTL2

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UNIT–III ADVANCED STORAGE NETWORKING AND VIRTUALIZATION

IP SAN: iSCSI, FCIP. Content–Addressed Storage: Fixed Content and Archives, Types of Archives, Features and Benefits of CAS, CAS Architecture, Object Storage and Retrieval in CAS, CAS Examples. Storage Virtualization: Forms of Virtualization, NIA Storage Virtualization Taxonomy, Storage Virtualization Configurations, Storage Virtualization Challenges, Types of Storage Virtualization.

UNIT–III [PART-A]

Q.No	Question	Competence	Level
27.	What is mean by IP SAN?	Remembering	BTL1
28.	Define iSCSI.	Remembering	BTL1
29.	List the components of iSCSI	Understanding	BTL2
30.	What is mean by Bridged iSCSI Connectivity?	Remembering	BTL1
31.	Expand iSCSI Discovery?	Understanding	BTL2
32.	List the two types of iSCSI names?	Understanding	BTL2
33.	How iSCSI Session can be initiated?	Analyzing	BTL4
34.	Differentiate between Ordering and Numbering in iSCSI communication?	Evaluating	BTL5
35.	Discuss the use of iSCSI PDU?	Understanding	BTL2
36.	List the levels of the error detection and recovery in iSCSI?	Understanding	BTL2
37.	Discuss about FCIP?	Understanding	BTL2
38.	Define CAS?	Understanding	BTL2
39.	What are the examples of fixed content data?	Remembering	BTL1
40.	List the types of Archives?	Understanding	BTL2
41.	What are the Features and Benefits of CAS?	Remembering	BTL1
42.	How CAS Architecture used ?	Analyzing	BTL4
43.	What is mean by BLOBS?	Remembering	BTL1
44.	How Content address is created?	Analyzing	BTL4
45.	List the steps involved in the process of data retrieval from CAS?	Understanding	BTL2
46.	What are the Examples of CAS ?	Remembering	BTL1
47.	What are the EMC Centera Models?	Remembering	BTL1
48.	List the Centera Tools?	Understanding	BTL2
49.	Discuss the importance of EMC Centera Universal Access?	Understanding	BTL2
50.	What is mean by storage virtualization?	Understanding	BTL2
51.	List the various forms of Virtualization?	Understanding	BTL2

UNIT–III[PART-B]

Q.No	Question		Marks	Competence	Level
12.	-	Discuss in detail about IP SAN and analyze the variety of situations where IP SAN technologies can be used.	13	Understanding	BTL2
13.		Explain detail about iSCSI Protocol Stack	13	Understanding	BTL2
14.	-	Discuss in detail about iSCSI Discovery	13	Understanding	BTL2
15.		How iSCSI Names used Explain in detail.	13	Analyzing	BTL4
16.	-	Discuss in detail about iSCSI PDU	13	Understanding	BTL2
17.	A	Summarize about Ordering and Numbering in iSCSI	07	Understanding	BTL2
	B	Explain about iSCSI Error Handling and Security?	06	Understanding	BTL2

18.	-	Explain about FCIP Topology	13	Understanding	BTL2
19.		Elaborate the Performance and security of FCIP	13	Understanding	BTL2
20.	A	Discuss about the Features and Benefits of CAS	07	Understanding	BTL2
	B	Explain the Types of Archives	06	Understanding	BTL2
21.	-	Summarize about the process of Object Storage and Retrieval in CAS	13	Understanding	BTL2
22.	-	Describe about two CAS example with solutions	13	Understanding	BTL2
23.		Explain in detail about EMC Centera Tools and EMC Centera Universal Access		Understanding	BTL2
13	-	Discuss in detail about various Forms of virtualization	13	Understanding	BTL2
14	-	Evaluate various Storage Virtualization Challenges.	13	Evaluating	BTL5
15	-	Summarize about Block-Level Storage Virtualization	13	Understanding	BTL2
16	-	Explain about File-Level Virtualization	13	Understanding	BTL2
17	-	Explain about Server Virtualization	13	Understanding	BTL2
UNIT-III[PART-C]					
1	Explain in detail about iSCSI, components and topologies for iSCSI Connectivity		15	Understanding	BTL2
2	Analyze about Content-Addressed Storage and Explain the CAS Architecture		15	Analyzing	BTL4
3	Explain in detail about EMC Centera Architecture.		15	Understanding	BTL2
4	Explain about Storage virtualization and Types of storage virtualization		15	Understanding	BTL2
5	Discuss in detail about SNIA Storage Virtualization Taxonomy?		15	Understanding	BTL2

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UNIT–IV: BUSINESS CONTINUITY

Introduction to Business Continuity: Information Availability, BC Terminology, BC Planning Lifecycle, Failure Analysis, Business Impact Analysis, BC Technology Solutions. Backup and Recovery: Backup Purpose, Considerations, Granularity, Recovery Considerations, Backup Methods and Process.

UNIT–IV [PART-A]

Q.No	Question	Competence	Level
52.	What is mean by Information Availability?	Remembering	BTL1
53.	What are the causes of Information Availability?	Remembering	BTL1
54.	How Information availability can be measured?	Analyzing	BTL4
55.	Differentiate between MTBF and MTTR?	Evaluating	BTL5
56.	What is mean by RPO?	Understanding	BTL2
57.	List the stages in BC planning life cycle?	Understanding	BTL2
58.	What is mean by Recovery-Time Objective?	Remembering	BTL1
59.	What is Single Point of Failure?	Remembering	BTL1
60.	Define business impact analysis (BIA)?	Remembering	BTL1
61.	Discuss the various set of tasks in BIA?	Understanding	BTL2
62.	What are the various PowerPath features?	Remembering	BTL1
63.	List the various PowerPath load-balancing policies?	Understanding	BTL2
64.	How PowerPath performs operations in the event of a path failure,?	Analyzing	BTL4
65.	What is mean by Backup and Recovery?	Remembering	BTL1
66.	Why Backups are performed?	Understanding	BTL2
67.	What is mean by Disaster Recovery	Remembering	BTL1
68.	How Operational Backup is used?	Understanding	BTL2
69.	What is mean by Backup Granularity?	Remembering	BTL1
70.	List the various Backup Methods?	Understanding	BTL2
71.	Discuss about Backup Process?	Understanding	BTL2
72.	What are the three basic Backup Topologies?	Remembering	BTL1
73.	What is mean by Serverless Backup?	Remembering	BTL1
74.	What are the various Backup Technologies?	Remembering	BTL1
75.	Define Virtual Tape Library?	Remembering	BTL1
76.	What is mean by Physical Tape Library?	Remembering	BTL1

UNIT–IV[PART-B]

Q.No	Question		Marks	Competence	Level
24.	-	How will you measure Information Availability ?explain in detail.	13	Understanding	BTL2
25.		Analyze about BC Terminology and explain in detail	13	Analyzing	BTL4
26.	-	Discuss in detail about Various Backup Methods.	13	Understanding	BTL2
27.		How Backup is processed explain with an architecture.	13	Understanding	BTL2
28.	-	Explain about Data center infrastructure	13	Understanding	BTL2
29.	A	Explain about Single point of failure	07	Understanding	BTL2
	B	Discuss in detail about Fault Tolerance?	06	Understanding	BTL2

30.	-	Discuss about the Business Impact Analysis and BC Technology Solutions	13	Understanding	BTL2
31.		Analyze about I/O Operation with and without Powerpath	13	Analyzing	BTL4
32.		Explain about Automatic Path Failover	13	Understanding	BTL2
33.	-	Summarize about purpose of Backup in detail	13	Understanding	BTL2
34.		Explain in detail about Backup Granularity	13	Understanding	BTL2
35.	-	Discuss about Backup and Restore Operations in detail	13	Understanding	BTL2
13	-	Explain in detail about Backup in NAS Environments	13	Understanding	BTL2
14	-	Discuss in detail about Physical Tape Library.	13	Understanding	BTL2
15	-	Summarize about Virtual Tape Library	13	Understanding	BTL2
16	-	Explain about Direct-attached backup topology	13	Understanding	BTL2
17	-	Analyze about Mixed backup topology	13	Analyzing	BTL4
UNIT-IV[PART-C]					
1		Discuss in detail about Information availability, causes and Measuring Information availability	15	Understanding	BTL2
2		Explain in detail about BC Planning Lifecycle	15	Understanding	BTL2
3		How will you analyze Failure of the system? Elaborate in detail	15	Analyzing	BTL4
4		Explain about Dynamic Load Balancing in detail	15	Understanding	BTL2
5		Explain in detail about Backup Topologies?	15	Understanding	BTL2

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UNIT–V: REPLICATION

Local Replication: Source and Target, Uses of Local Replicas, Data Consistency, Local Replication Technologies, Restore and Restart Considerations, Creating Multiple Replicas, Management Interface.

UNIT–V [PART-A]

Q.No	Question	Competence	Level
77.	What is mean by Replication?	Remembering	BTL1
78.	Difference between source and target?	Evaluating	BTL5
79.	List the uses of Local Replicas?	Understanding	BTL2
80.	Discuss about sync daemon.	Understanding	BTL2
81.	What is mean by Data Consistency?	Remembering	BTL1
82.	List the Local Replication Technologies?	Understanding	BTL2
83.	What are the uses of LVM-Based Replication?	Remembering	BTL1
84.	Discuss the Limitations of LVM-Based Replication?	Understanding	BTL2
85.	Define File System Snapshot?	Remembering	BTL1
86.	What is mean by Storage Array–Based Replication?	Remembering	BTL1
87.	Define Full-Volume Mirroring.	Remembering	BTL1
88.	Discuss about Pointer-Based Virtual Replication?	Understanding	BTL2
89.	Compare the Local Replication Technologies?	Evaluating	BTL5
90.	What are the two types of Management interface?	Remembering	BTL1
91.	How Multiple Replicas is created?	Understanding	BTL2
92.	Define Data migration	Remembering	BTL1
93.	Discuss Advantages of LVM-Based Replication?	Understanding	BTL2
94.	What is mean by Pointer-Based Full-Volume Replication?	Remembering	BTL1
95.	Differentiate between Restore and Restart Considerations?	Evaluating	BTL5
96.	Discuss about TimeFinder / Clone ?	Understanding	BTL2
97.	List the various TimeFinder/Mirror Operations?	Understanding	BTL2
98.	What is mean by Clone Operation?	Remembering	BTL1
99.	What is an Business Continuance Volumes (BCVs)?	Remembering	BTL1
100	Discuss about Restoration of BCV pairs?	Understanding	BTL2

UNIT–V[PART-B]

Q.No		Question	Marks	Competence	Level
36.	-	Discuss in detail about Uses of Local Replicas	13	Understanding	BTL2
37.		Explain in detail about Consistency of a Replicated File System	13	Understanding	BTL2
38.	-	Discuss in detail about Consistency of a Replicated Database	13	Understanding	BTL2
39.		Explain about LVM-Based Replication	13	Understanding	BTL2
40.	-	Explain about Full-Volume Mirroring	13	Understanding	BTL2
41.	A	Discuss the advantages LVM-Based Replication	07	Understanding	BTL2
	B	Discuss about Limitations of LVM-Based Replication	06	Understanding	BTL2
42.	-	Explain about Pointer-Based Full-Volume Replication	13	Understanding	BTL2
43.		Analyze about Multiple Replicas in detail.	13	Analyzing	BTL4

44.	A	Explain about restore considerations?	07	Understanding	BTL2
	B	Discuss about restart considerations ?	06	Understanding	BTL2
45.	-	Summarize about Pointer-Based Virtual Replication	13	Understanding	BTL2
46.	-	How will you Track Changes to Source and Target? Explain in detail	13	Analyzing	BTL4
47.	-	How will you create Creating Multiple Replicas? Explain in detail	13	Analyzing	BTL4
48.	-	Discuss in detail about Management Interface	13	Understanding	BTL2
49.	-	Elaborate the uses of Data consistency	13	Understanding	BTL2
50.	-	Elaborate the working of Full-Volume Mirroring	13	Understanding	BTL2
51.	-	Explain about the need of Local replication	13	Understanding	BTL2
52.		Elaborate the working of Consistency of a Replicated Database	13	Understanding	BTL2
UNIT-V[PART-C]					
1		Discuss in detail about Data Consistency	15	Understanding	BTL2
2		Explain in detail about Host-Based Local Replication	15	Understanding	BTL2
3		Analyze about Storage Array–Based Replication	15	Analyzing	BTL4
4		Explain about Restore and Restart Considerations	15	Understanding	BTL2
5		Explain in detail about Local Replication?	15	Understanding	BTL2