

Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2019
CS3EL03 Information Storage and Management
Programme: B.Tech. Branch/Specialisation: CSE

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. The general transformation cycle for information is: 1
 (a) Information to data to knowledge.
 (b) Knowledge to data to information.
 (c) Data to knowledge to information.
 (d) Data to information to knowledge.
- ii. Simply stated, these are large boxes that hold lots of hard disks. 1
 (a) Host (b) Tape library
 (c) Disk Array (d) Switch
- iii. Time to move read/write heads to a spot on medium is defined as the 1
 (a) Read Time (b) Seek Time
 (c) Transfer Time (d) Average Access Time
- iv. Which one of these is characteristic of RAID 5? 1
 (a) Distributed Parity
 (b) No Parity
 (c) All Parity in a Single Disk
 (d) Double Parity
- v. I/O requests to disk storage on a SAN are called 1
 (a) File I/Os (b) SAN I/Os (c) Block I/Os (d) Disk I/Os
- vi. Which topology is best suited for medium sized enterprise. 1
 (a) NAS (b) CAS (c) SAN (d) DAS
- vii. In which of the following types of virtualization are applications 1
 stored and executed on the server?
 (a) Application Virtualization (b) Storage Virtualization
 (c) Network Virtualization (d) Server Virtualization

[2]

- viii. The purpose of backup is: **1**
 (a) To restore a computer to an operational state following a disaster
 (b) To restore small numbers of files after they have been accidentally deleted
 (c) To restore one among many version of the same file for multiple backup environment
 (d) All of these
- ix. The _____ cloud infrastructure is operated for the exclusive use of an organization. **1**
 (a) Public (b) Private
 (c) Community (d) Hybrid
- x. Which of the following is best known service model? **1**
 (a) SaaS (b) IaaS (c) PaaS (d) All of these
- Q.2 i. What problems arise due to data proliferation? **2**
 ii. What is the significance of Data Center in storage technology? **3**
 iii. What is structured and unstructured data? What is the challenge of storing and managing unstructured data? **5**
- OR iv. Explain various phases of information life cycle management? Take any suitable example. **5**
- Q.3 i. What is meant by zoned bit recording? **2**
 ii. Explain the components of Intelligent Storage System. **3**
 iii. Compare the RAID level in terms of storage efficiency, cost, read and write performance, write penalty and protection. **5**
- OR iv. Consider a disk I/O system in which an I/O request arrives at the rate of 80 IOPS. The disk service time is 6 ms compute the following: **5**
 (a) Utilization of I/O controller
 (b) Total response time
 (c) Average queue size
 (d) Total time spent by a request in a queue.
- Q.4 i. What are the benefits of JBOD? **2**
 ii. Explain how a CAS solution fits into the ILM strategy. **3**

[3]

- iii. Explain evolution and comparison between DAS, NAS, SAN & CAS. **5**
- OR iv. Explain briefly the following: **5**
 (a) Node Port (b) Storage Arrays
 (c) Hub (d) Switch
- Q.5 i. What are the various forms of Virtualization? **2**
 ii. Write the steps for processing Backup & Restore operation. Explain in brief? **3**
 iii. Short note on: **5**
 (a) CIM (b) Threshold Management
- OR iv. Explain the following: **5**
 (a) Disaster (b) Archival
- Q.6 i. How does cloud computing provides on demand functionality? **2**
 ii. What is difference between scalability and elasticity for cloud computing? **3**
 iii. What is secure execution environment and communication in cloud? Explain different threats and vulnerabilities specific to virtual machine. **5**
- OR iv. Write short notes on following: **5**
 (a) Risks of Cloud Computing
 (b) Cloud Architecture

Marking Scheme

CS3EL03 Information Storage and Management

Q.1	i.	The general transformation cycle for information is: (d) Data to information to knowledge.	1		
	ii.	Simply stated, these are large boxes that hold lots of hard disks. (c) Disk Array	1		
	iii.	Time to move read/write heads to a spot on medium is defined as the (b) Seek Time	1		
	iv.	Which one of these is characteristic of RAID 5? (a) Distributed Parity	1		
	v.	I/O requests to disk storage on a SAN are called (c) Block I/Os	1		
	vi.	Which topology is best suited for medium sized enterprise. (a) NAS	1		
	vii.	In which of the following types of virtualization are applications stored and executed on the server? (c) Network Virtualization	1		
	viii.	The purpose of backup is: (d) All of these	1		
	ix.	The _____ cloud infrastructure is operated for the exclusive use of an organization.	1		
	x.	Which of the following is best known service model? (d) All of these	1		
Q.2	i.	Problems arise due to data proliferation	2		
	ii.	Significance of Data Center in storage technology Definition 1 mark Description 2 marks	3		
	iii.	Structured and unstructured data 2 marks Challenge of storing and managing unstructured data 3 marks	5		
	OR iv	Phases of information life cycle management 3 marks Example 2 marks	5		
Q.3	i.	Definition zoned bit recording	2		
	ii.	Components of Intelligent Storage System. Definition 1 mark Description 2 marks	3		
	iii.	Compare the RAID level in terms of storage efficiency, cost, read and write performance, write penalty and protection. 1 mark for each comparison (1 mark * 5)	5		
OR	iv.	Consider a disk I/O system in which an I/O request arrives at the rate of 80 IOPS. The disk service time is 6 ms compute the following: (a) Utilization of I/O controller 1 mark (b) Total response time 1 mark (c) Average queue size 1 mark (d) Total time spent by a request in a queue. 1 mark For final result 1 mark	5		
Q.4	i.	Benefits of JBOD	2		
	ii.	Explain how a CAS solution fits into the ILM strategy. Solution 2 marks Description 1 mark	3		
	iii.	Evolution and comparison between DAS, NAS, SAN & CAS. 1.25 mark for each comparison (1.25 mark * 4)	5		
OR	iv.	Explain briefly the following: 1.25 mark for each (1.25 mark * 4) (a) Node Port (b) Storage Arrays (c) Hub (d) Switch	5		
Q.5	i.	Various forms of Virtualization	2		
	ii.	Steps for processing Backup & Restore operation Definition 1 mark Description 2 marks	3		
	iii.	Short note on: (a) CIM 2.5 marks (b) Threshold Management 2.5 marks	5		
OR	iv.	Explain the following: (a) Disaster 2.5 marks (b) Archival 2.5 marks	5		

Q.6	i.	Cloud computing provides on demand functionality	2
	ii.	Difference between scalability and elasticity for cloud computing	3
	iii.	Secure execution environment and communication in cloud and different threats and vulnerabilities specific to virtual machine.	5
OR		Definition	2 marks
		Description	3 marks
	iv.	Write short notes on following:	5
		(a) Risks of Cloud Computing	2.5 marks
		(b) Cloud Architecture	2.5 marks
