SRM Institute of Science and Technology
College of Engineering and Technology
School of Computing

SET A
BATCH 1

DEPARTMENT OF COMPUTING TECHNOLOGIES

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2023 -2024

Test: CLAT-3 **Date: 02.11.23**

Course Code & Title: 18CSE360T-Information Storage and Management **Duration:** 12.30pm to 2.15pm

Year & Sem: III/ V **Max. Marks:** 50

Course Articulation Matrix:

Sl.No	Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO9	P10	P11	P12
1	CO1	3	-	-	-	-	-	-	-	2	-	-	3
2	CO2	3	3	3	3	-	-	-	-	2	-	-	3
3	CO3	3	3	3	3	-	-	-	-	2	-	-	3
4	CO4	3	3	2	2	-	-	-	-	3	-	-	3
5	CO5	2	3	-	-	-	-	-	-	3	-	-	2
6	CO6	3	-	-	-	-	-	-	-	2	-	-	3

Part – A (20 x 1 = 20 Marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
1	_____Provides the required secrecy of information and ensures that only authorized users have access to data. **a) Confidentiality** b) Integrity c) Availability d) Accountability	1	1	4	1,2,3, 4,9,1 2	3.1.1
2	Which technique is used for the detection of errors caused by noise or other impairments during transmission from the transmitter to the receiver? **a) Error Correction** b) Error Detection c) Availability d) Accountability	1	1	4	1,2,3, 4,9,1 2	3.1.1
3	When someone overhears a conversation the unauthorized access to this information is called a) Snooping b) Vulnerability **c) Eavesdropping** d) Denial of service	1	2	4	1,2,3, 4,9,1 2	3.1.1
4	_____refers to accessing another users data in unauthorized way **a) Snooping** b) Vulnerability c) Eavesdropping d) Denial of service	1	2	4	1,2,3, 4,9,1 2	3.1.1
5	How many s security domains in data storage to access data path **a) 3** b) 4 c) 5 d) 2	1	2	5	1,2,9, 12	3.1.1
6	_____ is a control mechanism on the switches that segments the network into specific paths to be used for the data traffic a) Snooping b) Vulnerability **c) Zoning** d) Denial of service	1	2	5	1,2,3, 4,9,1 2	3.1.1
7	What are all the two security controls for protecting the network in the storage infrastructure? **a) Network infrastructure integrity and storage network encryption** b) Zoning and dos c) Snooping and zoning d) Network infrastructure integrity and Snooping	1	1	4	1,2,3, 4,9,1 2	3.1.1
8	Expand LDAP **a) Lightweight Directory Access Protocol** b) Light Directory Access Protocol c) Lightweight Direct Access Protocol d) Light Direct Access Protocol	1	2	5	1,2,3, 4,9,1 2	3.1.1
9	_____Prevents unauthorized switch from joining any existing switch in the fabric **a) Fabric Binding** b) RBAC c) Access Control Lists d)Users	1	2	4	1,2,3, 4,9,1 2	3.1.1
10	Which protocol provide strong authentication for client server application by using secret key cryptography **a) Kerberos** b) TNC c) Firewall d) Light Directory Access Protocol	1	1	5	1,2,3, 4,9,1 2	3.1.1
11	Which one of the following statements is true? **a) Service Level Agreements (SLAs) is a small aspect of cloud computing.**	1	2	6	1,9,1 2	3.1.1

	b) Cloud computing have an impact on Software licensing. c) Cloud computing doesn't present new opportunities to users and developers. d) Consumers cannot leverage the "ready-to-use" services					
12	Which one of the following service models generally focuses on the hardware? **a) IaaS** b) CaaS c) PaaS d) SaaS	1	1	6	1,9,12	3.1.1
13	Which among the following Characteristics of Cloud Computing allows the Provider's computing facilities to be shared to serve multiple consumers? a) On-demand self-service b) Broad network access **c) Resource pooling** d) Rapid elasticity	1	1	6	1,9,12	3.1.1
14	Which among the following was owned by an organization who sells cloud services? a) Hybrid b) Private c) Community **d) Public**	1	1	6	1,9,12	3.1.1
15	The SLA serves as the foundation for the expected level of service between _____ and _____. **a) Organization and Provider** b) Owner and provider c) Organization and Consumer d) Consumer and Provider	1	1	6	1,9,12	3.1.1
16	Which attribute analyses the application's suitability to be ported to the cloud? **a) Application Attributes** b) Service Attributes c) Cloud Attributes d) Private Attributes	1	1	6	1,9,12	3.1.1
17	Which of the following organization does not provide OpenID authentication? a) Google **b) Amazon** c) Yahoo! d) IBM	1	2	6	1,9,12	3.1.1
18	In cloud storage level, _____ is the lowest level of storage and the closest to the hardware. a) Files b) Datasets **c) Blocks** d) Objects	1	2	6	1,9,12	3.1.1
19	A _____ hosts an active cloud service and is further accessed by a cloud consumer for administrative purposes. **a) Virtual server** b) Physical server c) Logical server d) Database Server	1	2	6	1,9,12	3.1.1
20	Cloud computing provides better agility and higher availability at reduced expenditure. a) **True** b) False	1	1	6	1,9,12	3.1.1

Part – A (2 x 5 = 10 Marks)
Answer any 2

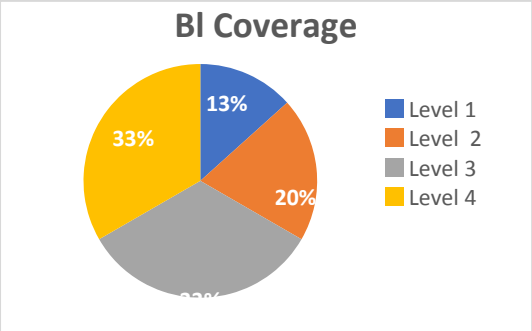
Q. No	**Question**	**Marks**	**BL**	**CO**	**PO**	**PI Code**
21	Write down the steps for Kerberos authentication. 1. The user logs on to the workstation in the Active Directory domain (or forest) using an ID and a password. The client computer sends a request to the AS running on the KDC for a Kerberos ticket. The KDC verifies the user's login information from Active Directory. (This step is not explicitly shown in Figure) 2. The KDC responds with an encrypted Ticket Granting Ticket (TGT) and an encrypted session key. • TGT has a limited validity period. TGT can be decrypted only by the KDC, and the client can decrypt only the session key. 3. When the client requests a service from a server, it sends a request, consisting of the previously generated TGT, encrypted with the session key and the resource information to the KDC. 4. The KDC checks the permissions in Active Directory and ensures that the user is authorized to use that service. 5. The KDC returns a service ticket to the client. This service ticket contains fields addressed to the client and to the server hosting the service. 6. The client then sends the service ticket to the server that houses the required resources. 7. The server, in this case the NAS device, decrypts the server portion of the ticket and stores the information in a keytab file. As long as the client's Kerberos ticket is valid,	5	2	4	1,2,3,4,9,12	3.1.1

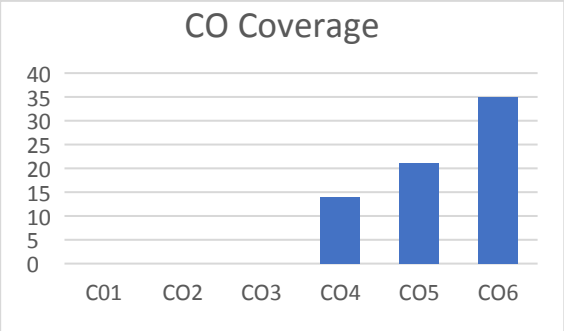
	this authorization process does not need to be repeated. The server automatically allows the client to access the appropriate resources. 8. A client-server session is now established. The server returns a session ID to the client, which tracks the client activity, such as file locking, as long as the session is active.					
22	Discuss about the benefits of Cloud Computing. **Reduced IT cost:** **Business agility:** **Flexible scaling:** **High availability:**	5	2	6	1,9,12	3.1.1
23	List the various Storage Infrastructure Management Challenges • Monitoring and managing today's complex storage infrastructure is challenging. • This is due to the heterogeneity of storage arrays, networks, servers, databases, and applications in the environment. • An environment with multiple tools makes understanding the overall status of the environment challenging because the tools may not be interoperable. • Ideally, management tools should correlate information from all components in one place. • Such tools provide an end-to-end view of the environment, and a quicker root cause analysis for faster resolution to alerts.	5	3	5	1,9,12	3.1.1
	Part – C (2 x 10 = 20 Marks) **Answer all**					
24	Explain in detail about one way and two way of Securing Implementation in IP SAN One way Authentication password configured on only one side of the connection Two way Authentication password configured on both sides of the connection, requiring both nodes to validate the connection e.g. mutual authentication	10	3	4	1,2,3,4,9,12	3.1.1
	(OR)					
25	Illustrate the following with necessary diagrams: A) Cloud deployment Models 1. **public** 2. **private** 3. **community** 4. **hybrid** B) Cloud Service Models 1. Infrastructure-as-a-Service (IaaS) 2. Platform-as-a-Service (PaaS) 3. Software-as-a-Service (SaaS)	5+5	3	6	1,9,12	3.1.1
26	Illustrate the cloud usage monitoring in details • The cloud usage monitor mechanism is a lightweight and autonomous software program responsible for collecting and processing IT resource usage data. <u>Three common agent-based implementation formats:</u> 1. **Monitoring Agent** 2. **Resource Agent** 3. **Polling Agent** • Each can be designed to forward collected usage data to a log database for postprocessing and reporting purposes.	10	3	6	1,9,12	3.1.1
	(OR)					
27	Distinguish between process, container and VM?	10	4	5	3	3.1.1

	Process	Container	VM
Definition	A representation of a running program.	Isolated group of processes managed by a shared kernel.	A full OS that shares host hardware via a hypervisor.
Use case	Abstraction to store state about a running process.	Creates isolated environments to run many apps.	Creates isolated environments to run many apps.
Type of OS	Same OS and distro as host,	Same kernel, but different distribution.	Multiple independent operating systems.
OS isolation	Memory space and user privilieges.	Namespaces and cgroups.	Full OS isolation.
Size	Whatever user's application uses.	Images measured in MB + user's application.	Images measured in GB + user's application.
Lifecycle	Created by forking, can be long or short lived, more often short.	Runs directly on kernel with no boot process, often is short lived.	Has a boot process and is typically long lived.

***Performance Indicators are available separately for Computer Science and Engineering in AICTE examination reforms policy.**

Course Outcome (CO) and Bloom's level (BL) Coverage in Questions





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SET B

BATCH 1

DEPARTMENT OF COMPUTING TECHNOLOGIES

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2023-2024

Test: CLAT-3 **Date: 02.11.23**

Course Code & Title: 18CSE360T-Information Storage and Management **Duration:** 12.30pm to 2.15pm

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1	CO1	3	-	-	-	-	-	-	-	2	-	-	3
2	CO2	3	3	3	3	-	-	-	-	2	-	-	3
3	CO3	3	3	3	3	-	-	-	-	2	-	-	3
4	CO4	3	3	2	2	-	-	-	-	3	-	-	3
5	CO5	2	3	-	-	-	-	-	-	3	-	-	2
6	CO6	3	-	-	-	-	-	-	-	2	-	-	3

Part – A (20 x 1 = 20 Marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
1	Risk triad defines the A. The process assess risk and vulnerability B. **Risk in terms of threads, assets and vulnerability** C. Extent of potential threats D. Perspective of risk identification and control	1	1	4	1,2,3,4,9,12	3.1.1
2	To manage risks, organizations primarily focus on .....because they cannot eliminate threat agents that may appear in various forms and sources to its assets A. integrity B. business management C. vulnerabilities D. document	1	2	4	1,2,3,4,9,12	3.1.1
3	Eaves dropping and snooping refers to A. modification attack. **B. types of passive attack** C. types of active attack D. denial of service	1	1	4	1,2,3,4,9,12	3.1.1
4	..... Provides an integrated solution for monitoring and managing an enterprise storage infrastructure. **A. Enterprise management** B. Business management C. Security management D. Document management	1	2	5	1,2,9,12	3.1.1
5	Network security can be configured on the FC switch by using A. integrity check B. security check C. data control lists **D. access control lists**	1	2	4	1,2,3,4,9,12	3.1.1
6	For each _____ the Kerberos Key Distribution Center (KDC) keeps an information base of the domain's head and the chief's related "secret keys". a) Key **b) Realm** c) Document d) none of the mentioned	1	2	5	1,2,9,12	3.1.1
7	..... is the potential attacks that can be carried out on an IT infrastructure A. Vulnerability B. Repudiation **C. Threats** D. DoS	1	1	4	1,2,3,4,9,12	3.1.1
8	Security monitoring also helps to tracks unauthorized configuration changes of storage A. substitute elements **B. infrastructure elements** C. backup elements D. data elements	1	1	4	1,2,3,4,9,12	3.1.1
9	Information alert provides useful information that does not require any intervention by the A. agent **B. server** **C. administrator** D. client	1	1	5	1,2,9,12	3.1.1
10	What are the features of SMI-S in SAN management? A. Common data model, interconnected independence, multi-layer management, legacy system and policy based management. B. Performance capacity planning, removable media, volume management and information system C. Multilayer management, performance, legacy system and policy management D. Common data model, capacity planning independence and policy management	1	2	5	1,2,9,12	3.1.1
11	Which of the following is the correct statement about cloud computing? **a) Cloud computing abstracts systems by pooling and sharing resources** b) Cloud computing is nothing more than the Internet c) The use of the word “cloud” makes reference to the two essential concepts	1	2	6	1,9,12	3.1.1

	d) All of the mentioned					
12	Which architectural layer is used as a backend in cloud computing? **a) cloud** b) soft c) client d) all of the mentioned	1	**1**	**6**	1,9,12	3.1.1
13	Which of the following is the most essential element in cloud computing by CSA? a) Virtualization **b) Multi-tenancy** c) Identity and access management d) All of the mentioned	1	**1**	**6**	1,9,12	3.1.1
14	Which of the following is the most important area of concern in cloud computing? a) Scalability b) Storage **c) Security** d) All of the mentioned	1	**1**	**6**	1,9,12	3.1.1
15	_____ is hosted by an organization within its own data centers a) Externally hosted private cloud **b) On-premise private cloud** c) Community Cloud d) Hybrid Cloud	1	**2**	**6**	1,9,12	3.1.1
16	Which of the following is not a property of cloud computing? a) virtualization b) composability c) scalability **d) Mirroring**	1	**2**	**6**	1,9,12	3.1.1
17	Which of the following is related to the service provided by Cloud? **a) Sourcing** b) Ownership c) Reliability d) AaaS	1	**2**	**6**	1,9,12	3.1.1
18	_____ is a complete operating environment with applications, management, and user interface. a) IaaS **b) SaaS** c) PaaS d) All of the mentioned	1	**1**	**6**	1,9,12	3.1.1
19	_____ technology is used to implement the resource replication mechanism to replicate cloud-based IT resources. a) Cloud computing **b) Virtualization** c) Data privacy d) Encryption	1	**1**	**6**	1,9,12	3.1.1
20	Which of the following impose additional overhead on clients and offer faster transfer? **a) Block storage** b) File Storage c) File Server d) Virtual server	1	**1**	**6**	1,9,12	3.1.1
Part – A (2 x 5 = 10 Marks) **Answer any 2**						
Q. No	**Question**	**Marks**	**BL**	**CO**	**PO**	**PI Code**
21	Write short notes on LUN Masking and Zoning • LUN masking on storage arrays mask the LUNs presented to a frontend storage port based on the WWPNs of the source HBAs. • Also can be done on the basis of source FC addresses. • Offers a mechanism to lock down the FC address of a given node port to its WWN. • World Wide Name — A vendor-supplied, 64-bit globally unique identifier number assigned to nodes and ports in a fabric.) *WWPN zoning is the preferred choice* in security-conscious environments	5	2	4	1,2,3,4,9, 12	3.1.1
22	List Some key questions to ask before selecting a provider • How long and how well has the provider been delivering the services? • How well does the provider meet the organization's current and future requirements? • How easy is it to add or remove services? • How easy is it to move to another provider, when required? • What happens when the provider upgrades their software? Is it forced on everyone? Can you upgrade on your own schedule? • Does the provider offer the required security services? • Does the provider meet your legal and privacy requirements? • Does the provider have good customer service support?	5	3	6	1,9,12	3.1.1
23	Write short nodes on charge back report • Three servers with two HBAs each connect to a storage array via two switches, SW1 and SW2. • Individual departmental applications run on each of the servers. • Array replication technology is used to create local and remote replicas. • The production device is represented as A, the local replica device as B, and the remote replica device as C.	5	2	5	1,2,9,12	3.1.1
Part – C (2 x 10 = 20 Marks) **Answer all**						
24	List the various RISK Triads and explain Vulnerability in detail • Risk triad defines risk in terms of threats, assets, and vulnerabilities. • Vulnerabilities can occur anywhere in the system • Failure anywhere in the system can jeopardize the security of information assets • Understanding Vulnerabilities • Solution to protect critical assets: • Implement countermeasures (safeguards, or controls) in order to reduce the impact of vulnerabilities • Controls provide different functions	10	3	4	1,2,3,4,9, 12	3.1.1

	(OR)					
25	Illustrate Performance monitoring with a neat sketch • **Monitoring array port utilization ensures that the new server does not adversely affect the performance of the other servers.** • **In this example, utilization of the shared storage port is shown by the solid(red) and dotted lines(green) in the graph.** • **If the port utilization prior to deploying the new server is close to 100 percent, then deploying the new server is not recommended because it might impact the performance of the other servers.** • **However, if the utilization of the port prior to deploying the new server is closer to the dotted line(green), then there is room to add a new server.** • **Diagram**	10	4	5	1,2,9,12	3.1.1
26	Analyze the various cloud infrastructure mechanism in detail **Cloud infrastructure mechanisms are,** 1. **Logical Network Perimeter** 2. **Virtual Server** 3. **Cloud Storage Device** 4. **Cloud Usage Monitor** 5. **Resource Replication** 6. **Ready-Made Environment**	10	4	6	1,9,12	3.1.1
	(OR)					
27	Explain selection of deployment model for cloud • Risk versus convenience is a key consideration for deciding on a cloud adoption strategy. This consideration also forms the basis for choosing the right cloud deployment model. • A public cloud is usually preferred by individuals and start-up businesses. For them, the cost reduction offered by the public cloud outweighs the security or availability risks in the cloud. • Small- and medium-sized businesses (SMBs) have a moderate customer base, and any anomaly in customer data and service levels might impact their business. • Therefore, they may not be willing to deploy their tier 1 applications, such as Online Transaction Processing (OLTP), in the public cloud. A hybrid cloud model fits in this case. • The tier 1 applications should run on the private cloud, whereas less critical applications such as backup, archive, and testing can be deployed in the public cloud. • Enterprises typically have a strong customer base worldwide. • They usually enforce strict security policies to safeguard critical customer data. Because they are financially capable, they might prefer building their own private clouds.	10	3	6	1,9,12	3.1.1

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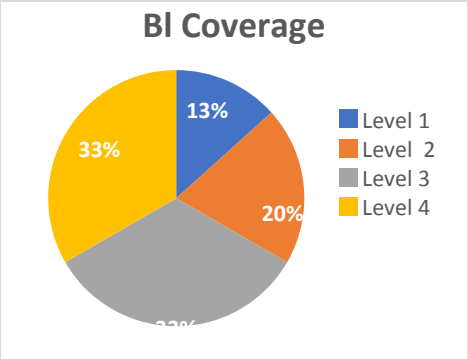

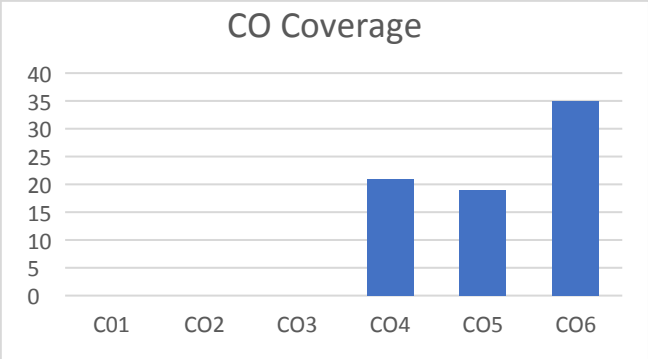

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SET C
BATCH 2

DEPARTMENT OF COMPUTING TECHNOLOGIES

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2023-2024

Test: CLAT-3 **Date: 02.11.23**

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3	CO3	3	3	3	3	-	-	-	-	2	-	-	3
4	CO4	3	3	2	2	-	-	-	-	3	-	-	3
5	CO5	2	3	-	-	-	-	-	-	3	-	-	2
6	CO6	3	-	-	-	-	-	-	-	2	-	-	3

Part – A (20 x 1 = 20 Marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
1	Which protocol is used for Storage management? **a) SNMP** b) LDAP c) POP3 d) MIB	1	1	5	1,2,9,12	3.1.1
2	_____ ensures that the information is unaltered a) Confidentiality **b) Integrity** c) Availability (CIA) d) Accountability	1	1	4	1,2,3,4,9,12	3.1.1
3	Which of the following is not an active attack a) Data modification, b) Denial of Service (DoS), **c) Repudiation attacks** d) unauthorized access into the system	1	2	4	1,2,3,4,9,12	3.1.1
4	_____ is the preferred choice in security-conscious environments. **a) WWPN Zoning** b) Securing Switch Ports c) Logical Partitioning of a Fabric d) Switch-Wide and Fabric-Wide Access Control	1	2	4	1,2,3,4,9,12	3.1.1
5	Which of the following is not a product of VMware vShield family a) vShield App b) vShield Edge c) vShield Endpoint **d) vShield Core**	1	2	5	1,2,9,12	3.1.1
6	Monitoring can be configured to issue a message when _____on the file system capacity. **a) thresholds are reached** b) acknowledgement is received c) Error occurs d) Client disconnects	1	2	5	1,2,9,12	3.1.1
7	Eaves dropping and snooping refers to A. modification attack**. B. types of passive attack** C. types of active attack D. denial of service	1	1	4	1,2,3,4,9,12	3.1.1
8	For each _____ the Kerberos Key Distribution Center (KDC) keeps an information base of the domain's head and the chief's related "secret keys". a) Key **b) Realm** c) Document d) none of the mentioned	1	2	5	1,2,9,12	3.1.1
9	_____Prevents unauthorized switch from joining any existing switch in the fabric a**) Fabric Binding** b) RBAC c) Access Control Lists d)Users	1	2	4	1,2,3,4,9,12	3.1.1
10	Which protocol provide strong authentication for client server application by using secret key cryptography a) Kerberos b) TNC c) Firewall d) Light Directory Access Protocol	1	1	4	1,2,3,4,9,12	3.1.1
11	_____ technology is used to implement the resource replication mechanism to replicate cloud-based IT resources. a) Cloud computing **b) Virtualization** c) Data privacy d) Encryption	1	2	6	1,9,12	3.1.1
12	Which of the following organization does not provide OpenID authentication? a) Google **b) Amazon** c) Yahoo! d) IBM	1	1	6	1,9,12	3.1.1
13	Which of the following is the most important area of concern in cloud computing? a) Scalability b) Storage **c) Security** d) All of the mentioned	1	1	6	1,9,12	3.1.1

14	Which of the following is the working models for cloud computing? **a) Deployment Models** b) Configuring Model c) Collaborative Model d) All of the above	1	1	6	1,9,12	3.1.1
15	What is the number one concern about cloud computing? a) Too expensive **b) Security concerns** c) Too many platforms d) Accessibility	1	1	6	1,9,12	3.1.1
16	Which cloud deployment model is operated solely for a single organization and its authorized users? a) Community cloud b) Hybrid cloud c) Public cloud **d) Private cloud**	1	1	6	1,9,12	3.1.1
17	How can confidentiality of information be achieved? a) By ensuring enough resources to make information available for all users b) By preventing unauthorized changes c) By regularly backing up the information **d) By restricting access to information**	1	2	6	1,9,12	3.1.1
18	How does Cloud computing change the relationship between provider and customer? **a) Increased focus on service level agreements** b) less compliance to standards c) less focus on service level agreements d) more focus on training	1	2	6	1,9,12	3.1.1
19	In which category of SaaS services does CRM software fall? a) Consumer Services b) Communication Services **c)Infrastructure Services** d) Business Services	1	2	6	1,9,12	3.1.1
20	What is a characteristic of cloud-optimized storage? **a) Secure multitenancy** b) Single access mechanism c) Server-centric d) Native source-based deduplication	1	1	6	1,9,12	3.1.1
	Part – A (2 x 5 = 10 Marks) **Answer any 2**					
Q. No	**Question**	**Marks**	**BL**	**CO**	**PO**	**PI Code**
21	Define the terms 1. Multitenancy 2. Velocity of attack 3. Information assurance 4. Data privacy.	5	2	4	1,2,3,4,9,12	3.1.1
22	Describe the different cloud storage levels • Cloud storage device mechanisms provide common logical units of data storage, such as: ○ Files – Collections of data are grouped into files that are located in folders. ○ Blocks – The lowest level of storage and the closest to the hardware, a block is the smallest unit of data that is still individually accessible. ○ Datasets – Sets of data are organized into a table- based, delimited, or record format. ○ Objects – Data and its associated metadata are organized as Web-based resources.	5	3	5	1,2,9,12	3.1.1
23	Discuss about the benefits of Cloud Computing. **Reduced IT cost:** **Business agility:** **Flexible scaling:** **High availability:**	5	4	6	1,9,12	3.1.1
	Part – C (2 x 10 = 20 Marks) **Answer all**					
24	Explain the various storage management activities in brief	10	3	5	1,2,9,12	3.1.1
	(OR)					
25	Illustrate the various security zones and its protection strategies **SECURITY ZONES** — **PROTECTION STRATEGIES** **Zone A (Authentication at the Management Console)** (a) **Restrict management LAN access to authorized users (lock down MAC addresses);** (b) **(b) implement VPN tunneling for secure remote access to the management LAN; and** (c) **use two-factor authentication for network access.** **Zone B (Firewall)** **Block inappropriate traffic by** (a) **filtering out addresses that should not be allowed on your LAN; and** (b) **(b) screening for allowable protocols, block ports that are not in use.**	10	4	4	1,2,3,4,9,12	3.1.1

	Zone C (Access Control-Switch) **Zone D (Host to switch)** **Zone E (Switch to Switch/Switch to Router)** **Zone F (Distance Extension)** **Zone G (Switch to Storage) Protect the storage**	**Authenticate users/administrators of FC switches using Remote Authentication Dial In User Service (RADIUS), DH-CHAP (Diffie-Hellman Challenge Handshake Authentication Protocol), and so on.** **Restrict Fabric access to legitimate hosts by** **(a) implementing ACLs: Known HBAs can connect on specific switch ports only; and** **(b) implementing a secure zoning method, such as port zoning (also known as hard zoning).** **Protect traffic on fabric by** **(a) using E_Port authentication;** **(b) encrypting the traffic in transit; and** **(c) implementing FC switch controls and port controls.** **Implement encryption for in-flight data** **(a) FC-SP for long-distance FC extension; and** **(b) IPSec for SAN extension via FCIP.** **(a) Protect the storage arrays on your SAN via** **(b) WWPNbased LUN masking; and** **S_ID locking: masking based on source FC address.**					
26	Illustrate the various Cloud adaption constraints in details • Organizations that decide to adopt cloud computing always face this question: "How does the cloud fit the organization's environment?" • They need to consider various factors before moving their business processes to the cloud. • Even individuals seeking to use cloud services need to understand some cloud adoption considerations.		10	4	6	1,9,12	3.1.1
	(OR)						
27	Explain accessabiltiy monitoring with an example • Accessibility refers to the availability of a component to perform its desired operation during a specified time period. • Monitoring the accessibility of hardware components (for example, a port, an HBA, or a disk drive) or software component (for example, a database) involves checking their availability status by reviewing the alerts generated from the system. • Failure of a component might cause an outage that affects application availability, or it might cause performance degradation even though accessibility is not compromised. • Continuously monitoring for expected accessibility of each component and reporting any deviation helps the administrator to identify failing components and plan corrective action to maintain SLA (service-level agreement) requirements.		10	3	5	1,2,9, 12	3.1.1

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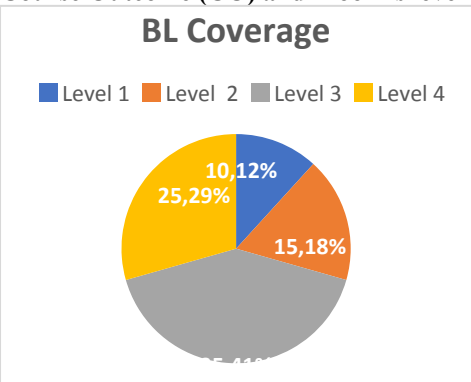
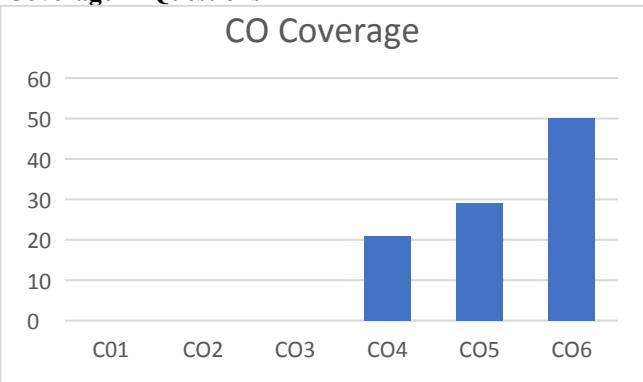
Course Outcome (CO) and Bloom's level (BL) Coverage in Questions





Approved by the Audit Professor/Course Coordinator

SRM Institute of Science and Technology
College of Engineering and Technology
School of Computing

SET D
BATCH 2

DEPARTMENT OF COMPUTING TECHNOLOGIES

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2023 - 2024

Test: CLAT-3 **Date: 02.11.23**

Course Code & Title: 18CSE360T-Information Storage and Management **Duration:** 8.00pm to 9.40am

Year & Sem: III/ V **Max. Marks:** 50

Course Articulation Matrix:

Sl.No	Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO9	P10	P11	P12
1	CO1	3	-	-	-	-	-	-	-	2	-	-	3
2	CO2	3	3	3	3	-	-	-	-	2	-	-	3
3	CO3	3	3	3	3	-	-	-	-	2	-	-	3
4	CO4	3	3	2	2	-	-	-	-	3	-	-	3
5	CO5	2	3	-	-	-	-	-	-	3	-	-	2
6	CO6	3	-	-	-	-	-	-	-	2	-	-	3

Part – A (20 x 1 = 20 Marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
1	_____ is the process to detect events that can compromise the confidentiality, integrity or availability of a resource a) Error detection b) Firewall c) LUN **d) Intrusion detection**	1	1	4	1,2,3, 4,9,1 2	3.1.1
2	Which function used for CHAP authentication **a) Hash function** b) Linear function c) Private key function d) Public key function	1	1	4	1,2,3, 4,9,1 2	3.1.1
3	_____refers to a situation in which any existing security threat in the cloud spreads more rapidly in cloud infrastructures a) Velocity of Function b) Data privacy c) Information assurance d) Data protection	1	2	4	1,2,3, 4,9,1 2	3.1.1
4	_____is a single point of security failure for all the VM s running on the cloud infrastructure a) Physical server **b) Hypervisor** c) Supervisor d) Controller.	1	2	4	1,2,3, 4,9,1 2	3.1.1
5	KDC Refers to _____ **a) Key distribution centre** b) Kerberos distribution centre c) Key division centre d) Kerberos division centre	1	2	5	1,2,9, 12	3.1.1
6	For each _____ the Kerberos Key Distribution Center (KDC) keeps an information base of the domain's head and the chief's related "secret keys". a) Key **b) Realm** c) Document d) none of the mentioned	1	2	5	1,2,9, 12	3.1.1
7	Linux frameworks can store Kerberos verification keys for an assistance head in _____ records. a) Client b) Server **c) Keytab** d) All of the mentioned	1	1	4	1,2,3, 4,9,1 2	3.1.1
8	_____ is a way of authenticating to remote servers without using a password. **a) key-based authentication** b) Private Key based authentication Public key-based authentication d) Security	1	2	5	1,2,9, 12	3.1.1
9	Which of them isn't a danger to data security? a) Disaster b) Eavesdropping c) Information leakage **d) Unchanged default password**	1	2	4	1,2,3, 4,9,1 2	3.1.1
10	_____ stages are utilized for wellbeing and security of data in the cloud. **a) Cloud workload protection platforms** b) Cloud security protocols c) AWS d) d) One Drive	1	1	5	1,2,9, 12	3.1.1
11	Which one of the following is the most important concern in cloud computing? **a) Security** b) Storage c) Scalability d) Elasticity	1	2	6	1,9,1 2	3.1.1
12	Which one of the following is the true statement?	1	1	6	1,9,1	3.1.1

	a) Private Cloud may be managed by the constituent organization(s) or by a third party. b) A community cloud is managed by a business, academic or government organization. c) Private clouds may be neither on- or off-premises d) A hybrid model does not allow an organization to leverage the scalability and cost-effectiveness of the public cloud.				2	
13	Which one of the following statement is false about Grid Computing? **a) Does not breaks complex tasks into small operations.** b) Enables parallel computing. c) Enables resources of numerous computers in a network to work on a single task at the same time. d) Is best for large workloads.	1	1	6	1,9,12	3.1.1
14	Which of the following is not a major cloud computing platform? a) Microsoft Azure b) Amazon EC2 **c) IBM Deep Blue** d) Google 101	1	1	6	1,9,12	3.1.1
15	_____ is hosted by an organization within its own data centers a) Externally hosted private cloud **b) On-premise private cloud** c) Community Cloud d) Hybrid Cloud	1	1	6	1,9,12	3.1.1
16	A _____ is usually preferred by individuals and start-up businesses. a) Hybrid cloud **b) Public cloud** c) Private cloud d) Community cloud	1	1	6	1,9,12	3.1.1
17	Microsoft introduced a cloud-computing based SQL relational database called Bigtable. (**True**/False)	1	2	6	1,9,12	3.1.1
18	A _____ monitors the status of a cloud service hosted by a virtual server by sending periodic polling response messages **Ans: Polling Agent**	1	2	6	1,9,12	3.1.1
19	_____ technology is used to implement the resource replication mechanism to replicate cloud-based IT resources. a) Cloud computing **b) Virtualization** c) Data privacy d) Encryption	1	2	6	1,9,12	3.1.1
20	Which of the following impose additional overhead on clients and offer faster transfer? **a) Block storage** b) File Storage c) File Server d) Virtual server	1	1	6	1,9,12	3.1.1
Part – A (2 x 5 = 10 Marks) Answer any 2						
Q. No	**Question**	**Marks**	**BL**	**CO**	**PO**	**PI Code**
21	Write short notes on securing switch ports Can be implemented using following methods, a) **Port binding** b) **Port lock down & Port lockout** c) **Persistent port disable**	5	3	4	1,2,3,4,9,12	3.1.1
22	Illustrate IAAS in detail • Consumers deploy their software, including OS and application on provider's infrastructure – Computing resources such as processing power, memory, storage, and networking components are offered as service – Example: Amazon Elastic Compute Cloud • Consumers have control over the OSs and deployed applications	5	4	6	1,9,12	3.1.1
23	Define LUN masking? State its features • LUN masking on storage arrays mask the LUNs presented to a frontend storage port based on the WWPNs of the source HBAs. • Also can be done on the basis of source FC addresses. • Offers a mechanism to lock down the FC address of a given node port to its WWN.	5	2	5	1,2,9,12	3.1.1
Part – C (2 x 10 = 20 Marks) Answer all						
23	Describe NAS File sharing 1) UNIX Permissions 2) Windows UNIX -- User A logical entity for assignment of ownership and operation privileges Can be either a person or a system operation Can be organized into one or more groups Permissions tell UNIX what can be done with that file and by whom Common Permissions	5+5	3	5	1,2,9,12	3.1.1

	Read/Write/Execute Every file and directory (folder) has three access permissions: rights for the file owner rights for the group you belong to rights for all others in the faculty File or Directory permission looks: # rwx rwx rwx (Owner, Group, Others) # : d for directory, - for file Windows : Types of ACLs Discretionary access control lists (DACL) Commonly referred to as ACL Used to determine access control System access control lists (SACL) Determines what accesses need to be audited if auditing is enabled Object Ownership Object owner has hard-coded rights to that object Rights do not have to be explicitly granted in the SACL Child objects within a parent object automatically inherit the ACLs SIDs ACLs applied to directory objects User ID/Login ID is a textual representation of true SIDs Automatically created when a user or group is created					
	(OR)					
24	Illustrate security monitoring with a neat diagram • In this example, the storage array is shared between two workgroups, WG1 and WG2. • The data of WG1 should not be accessible to WG2 and vice versa. • A user from WG1 might try to make a local replica of the data that belongs to WG2. • If this action is not monitored or recorded, it is difficult to track such a violation of information security. • Conversely, if this action is monitored, a warning message can be sent to prompt a corrective action or at least enable discovery as part of regular auditing operations. • An example of host security monitoring is tracking of login attempts at the host. • The login is authorized if the login ID and password entered are correct; or the login attempt fails. • These login failures might be accidental (mistyping) or a deliberate attempt to access a server. • Many servers usually allow a fixed number of successive login failures, prohibiting any additional attempts after these login failures. • In a monitored environment, the login information is recorded in a system log file, and three successive login failures trigger a message, warning of a possible security threat.	10	3	4	1,2,3,4,9,12	3.1.1
25	Analyze the cloud challenges with respect to consumers and providers Consumer : • Security and regulation – Consumers are indecisive to transfer control of sensitive data – Regulation may prevent organizations from using cloud services • Network latency – Real time applications may suffer due to network latency and limited bandwidth • Supportability – Service provider might not support proprietary environments Incompatible hypervisors could impact VM migration • Vendor lock-in – Lack of standardization across cloud-based platforms • Restricts consumers from changing their cloud service providers Providers : • Service warranty and service cost – Resources must be kept ready to meet unpredictable demand – Hefty penalty, if SLAs are not fulfilled • Complexity in deploying vendor software in the cloud – Many vendors do not provide cloud-ready software licenses	10	4	6	1,9,12	3.1.1

	– Higher cost of cloud-ready software licenses • No standard cloud access interface – Cloud consumers want open APIs – Need agreement among cloud providers for standardization					
	(OR)					
26	Illustrate the various cloud computing characteristics **Essential Cloud characteristics** 1. On-demand self-service 2. Broad network access 3. Resource pooling 4. Rapid elasticity 5. Measured service	10	4	6	1,9,12	3.1.1

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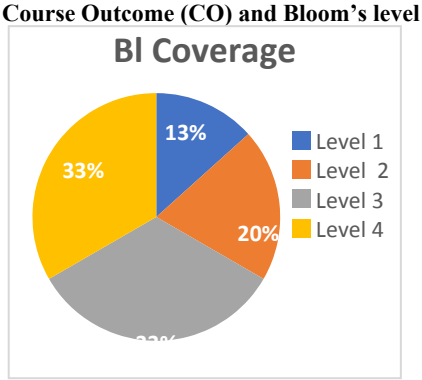

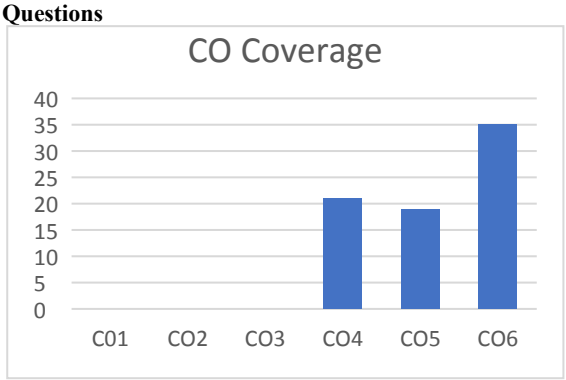

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