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B.Tech DEGREE EXAMINATION, NOVEMBER 2023

Seventh Semester

18CSE442T - CLOUD SECURITY

(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)

Note:

- i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 100

PART - A (20 × 1 = 20 Marks)

Marks BL CO

Answer all Questions

- | | | | | |
|----|--|---|--|---|
| 1. | If A decided to send a message to B. He does not want to send the plaintext as such, instead messages are sent as cipher text, what is the technique he followed to send the text? | 1 | 1 | 1 |
| | (A) SSO (single sign-on) | | (B) Integrity | |
| | (C) Access control techniques | | (D) Confidentiality | |
| 2. | If an attacker wants to generate a dummy request to degrade the performance of the server, what is the name of the attack? | 1 | 1 | 1 |
| | (A) DoS (Denial of Service) Attack | | (B) Cryptanalysis | |
| | (C) VM Theft | | (D) VM Hijack | |
| 3. | Role-Based Access Control (RBAC) describes _____ | 1 | 1 | 1 |
| | (A) Context-Based Access | | (B) Job-based access | |
| | (C) Policy-based access | | (D) Conditional access | |
| 4. | What is the 4th phase of the data life cycle? | 1 | 1 | 1 |
| | (A) Destruction | | (B) Transformation | |
| | (C) Archival | | (D) Storage | |
| 5. | ----- refers to hardware, services, equipment, and applications hosted locally | 1 | 1 | 2 |
| | (A) On-premises | | (B) Hosted Services | |
| | (C) Software as a Service (Saas) | | (D) Infrastructure as a Service (Iaas) | |
| 6. | A security process by which identities are established and access to resources is controlled. Users are assigned an account and are assigned rights and restrictions enforced by access control systems such as permissions. | 1 | 1 | 2 |
| | (A) Function as a Service (FaaS) | | (B) Penetration (Pen) testing | |
| | (C) Infrastructure as a Service (IaaS) | | (D) Identity Management (IdM) | |
| 7. | Service that connects an on-premises software appliance with cloud-based storage mounted as a file system on S3 | 1 | 1 | 2 |
| | (A) Multipart upload | | (B) File Gateway | |
| | (C) Edge Location | | (D) Distribution | |
| 8. | ----- delivers object storage to your on-premises AWS Outposts environment. | 1 | 1 | 2 |
| | (A) S3 One Zone-IA | | (B) S3 Outposts | |
| | (C) S3 Standard-IA | | (D) S3 Standard | |
| 9. | The operation that complicates the relationship between plaintext and ciphertext through Transposition/Permutation is | 1 | 1 | 3 |
| | (A) Hash Function | | (B) Diffie-Hellman | |
| | (C) Diffusion | | (D) Substitution | |

- | | | | |
|--|---|---|---|
| 10. The encryption method that hides a secret message within an open message is | 1 | 1 | 3 |
| (A) Product Cipher | (B) Symmetric Cipher | | |
| (C) Concealment cipher | (D) Running key cipher | | |
| 11. How should one troubleshoot an existing certificate that has been working previously? | 1 | 1 | 3 |
| (A) private key compromise business closure employment change cert. misuse | (B) check that the certificate has not expired or been revoked or suspended | | |
| (C) A document that defines the different types of certificates issued by a CA | (D) The algorithm used by the CA to sign the certificate | | |
| 12. Certificate Authority (CA) is ----- | 1 | 1 | 3 |
| (A) A server that guarantees subject identities by issuing signed digital certificate wrappers for their public keys | (B) A method of validating a certificate by tracing each CA that signs the certificate, up through the hierarchy to the root CA. Also referred to as chain of trust | | |
| (C) A digital certificate that has been signed by the entity that issued it, rather than by a CA | (D) An X500 attribute expressing a host or user name, also used as the subject identifier for a digital certificate | | |
| 13. The term that describes the concept of making multiple operating systems run on a single computer and is also called hardware virtualization is | 1 | 1 | 4 |
| (A) Process Virtual Machine | (B) System Virtual Machine | | |
| (C) Server virtualization | (D) Shared processor partition | | |
| 14. The standard for logging program messages that can be accessed by devices that would not otherwise have a method for communications is | 1 | 1 | 4 |
| (A) IPFIX | (B) sFlow | | |
| (C) Netflow | (D) Syslog | | |
| 15. The term that describes a rule based on a confidentiality classification tag or label attached to the data, where data can be tagged manually or using automated detection tools, and the DLP solution might support other types of labels, is | 1 | 1 | 4 |
| (A) Classification | (B) Policy server | | |
| (C) Policy template | (D) Endpoint agents | | |
| 16. The term that describes the reinforcement of information confidentiality by storing information in an out-of-the-way location to provide strict access control is | 1 | 1 | 4 |
| (A) Seclusion | (B) Isolation | | |
| (C) Sensitivity | (D) Integrity | | |
| 17. An account management service that enables you to consolidate multiple AWS accounts into an organization that you create and centrally manage. | 1 | 1 | 5 |
| (A) AWS Trusted Advisor | (B) Amazon Transcribe | | |
| (C) AWS Outposts | (D) AWS Organizations | | |
| 18. The cloud provider must agree to protect any PII from | 1 | 1 | 5 |
| (A) customer privacy in contracts | (B) Identity protection in cloud contracts | | |
| (C) Security and Privacy policies | (D) Regulatory issues in cloud contracts | | |
| 19. Describes warranties, liabilities, and other risk reduction provisions, also includes compensation for SLA non-compliance and part of the terms and conditions are examples of ----- | 1 | 1 | 5 |
| (A) rights and responsibilities | (B) Security and Privacy policies | | |
| (C) warranties and liabilities | (D) termination and renewal | | |

20. A formatted encrypted message that validates the information the CA requires to issue a digital certificate.	1	1	5
(A) Certificate Signing Request (CSR)			
(B) Digital certificate			
(C) Certificate pinning			
(D) Code Signing			

PART - B (5 × 4 = 20 Marks)

Answer any 5 Questions

	Marks	BL	CO
21. Differentiate Host level security from Network level security.	4	2	1
22. Draw the steps to create and validate the Digital signature.	4	2	2
23. Discuss defense in depth layered structure in cloud computing.	4	2	3
24. Why is a virtual machine considered in the sandboxing method and Write short notes on Virtualization and Emulation.	4	1	4
25. What Is an X.509 Certificate & How Does It Work? and What are the two types of certificates in X 509?	4	1	5
26. How can cloud data leakage be prevented? and What is cloud Data Loss Prevention DLP API?	4	2	5
27. What Is Cloud Identity and Cloud Authentication? and List various Cloud Authentication Methods and Issues Faced.	4	1	5

PART - C (5 × 12 = 60 Marks)

Answer all Questions

	Marks	BL	CO
28. (a) Illustrate the Data Life Cycle and provide a comprehensive explanation for each of its stages.	12	2	1
(OR)			
(b) Why does Trust Management play a significant role for Cloud Service Providers, and could you elaborate on three trust assessment techniques.			
29. (a) Sketch the NIST Cloud Computing Reference Model and provide a detailed description of its architectural components and an in-depth explanation.	12	4	2
(OR)			
(b) Examine the Architectural Design Hurdles in the Deployment of Cloud Data Centers.			
30. (a) Distinguish between stream ciphers and block ciphers also Illustrate and elucidate the operational mode of Cipher Block Chaining (CBC).	12	2	3
(OR)			
(b) What are the key differences between hashing and encryption? How is hashing used to ensure data integrity and digital signatures?			
31. (a) Explain the methods used to enforce security governance in cloud computing, including an overview of cloud logging and monitoring.	12	2	4
(OR)			
(b) What are the key aspects of intrusion detection systems in cloud computing, and how can you ensure virtual machine security while addressing the associated risks in the cloud environment?			
32. (a) Can you summarize the essential elements of cloud computing contracts, provide an overview of the cloud contracting model, and offer a detailed comparison between Cloud Clients and traditional client-server models?	12	2	5
(OR)			
(b) What are the primary applications of OpenSSL, and how can one obtain an SSL certificate through AWS? Additionally, can you outline the key components of Eucalyptus cloud architecture and explain the significance of Eucalyptus in the context of cloud computing.			

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